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CLINICAL LECTURES
ON
ENLARGEMENT OF THE PROSTATE



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Clinical Lectures ON ENLARGEMENT OF THE PROSTATE

With a Description of the Author's Operation of
Total Enucleation of the Organ

BY

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PREFACE TO THE THIRD EDITION

THE second edition of my lectures on 'Stricture of the Urethra and Enlargement of the Prostate' has been out of print for some months. I had not intended issuing a new edition of this work in separate form, as, at the invitation of the Publishers, I am engaged in preparing a more or less comprehensive work on 'The Surgical Diseases of the Urinary Organs.' Owing, however, to professional demands on my time, this work cannot appear as early as I anticipated. In the meantime I find that there is a somewhat pressing demand for the lectures on the prostate. I have, therefore, decided on issuing forthwith the lectures on the prostatic portion of the work in separate form. Consequent on the introduction of my operation of total enucleation of the enlarged prostate, the original lectures, which were delivered in November, 1900, at the Medical Graduates' College and Polyclinic, have been entirely re-written and amplified.

P. J. F.

27, HARLEY STREET,

LONDON, W.,

September, 1906.

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LECTURE I

ENLARGEMENT OF THE PROSTATE: ITS NATURE, PATHOLOGY, SYMPTOMS, AND DIAGNOSIS

GENTLEMEN,

To-day I propose considering with you that condition commonly called 'hypertrophy of the prostate,' an enlargement of the organ incidental to declining years, and which frequently causes obstruction to the urinary flow. It is sometimes named 'senile' enlargement, a not particularly appropriate description, as the disease, if it occur at all, sets in long before senility in the general acceptation of that term supervenes, and one that men who have scarcely turned middle life sometimes resent as offensive. As the disease is not a hypertrophy as generally understood, perhaps the most appropriate description would be enlargement of the prostate of declining life; but for brevity we will refer to it simply as 'enlargement of the prostate.'

It will be convenient in the first instance to briefly recall some of the characteristic features of the healthy organ. The prostate is a glandular body which surrounds the neck of the bladder and the adjacent inch of the urethra. In the adult it is the size and shape of a chestnut, being about $1\frac{1}{2}$ inches broad, 1 inch long, and $\frac{3}{4}$ inch deep. Its average weight is $4\frac{1}{2}$ drachms. The base is directed backwards and upwards towards the bladder, the neck of which it embraces, and the apex forwards and downwards, touching the trian-

gular ligament. The posterior surface, which is smooth and slightly grooved in the middle line, rests on the rectum, from which it is separated by dense fibrous tissue, which forms part of the 'sheath' of the prostate.

The prostate consists of two lateral lobes, between which the ejaculatory ducts enter from behind, before opening into the prostatic urethra. A third, or 'median,' lobe was described by Sir Everard Home in the early part of last century as existing in the normal prostate, and this description has been almost universally accepted as correct, in spite of the fact that Sir Henry Thompson with great skill combated the existence of this lobe. Practical experience derived from numerous dissections of the healthy prostate and more than 300 operations for removal of the enlarged organ entire in its capsule has convinced me that Sir Henry Thompson was correct in his views, and that the so-called 'middle' lobe is merely a pathological product, derived from one or both lateral lobes, and that it is non-existent in the normal prostate. There is, it is true, a median portion, or bridge of tissue, sometimes forming a rounded prominence, above the ejaculatory ducts in the normal prostate; but this is derived from both lateral lobes, which are in this position more intimately blended than in the rest of their course on either side of the prostatic urethra.

Structurally, the prostate is composed of glandular substance and a stroma made up of muscular and fibrous tissues. The glandular substance consists of follicular pouches with ducts lined with columnar epithelium. The excretory ducts, from twelve to twenty in number, open into the urethra beside the veru montanum. The muscle forms the bulk of the prostate, its supposed function being to eject the glandular secretion, or prostatic fluid, to mix with that from the ejaculatory ducts.

It is now recognised that the prostate is an accessory

sexual organ, its function being to secrete fluid to mix with the semen.

The prostate has a tendency to increase in size in a large proportion of men after the age of fifty, but the enlargement does not generally declare itself by any marked symptoms till after fifty-five years. This rule does not hold good in India, for it is generally recognised by surgeons in that country that decided symptoms of enlargement of the organ manifest themselves in natives as early as at the age of forty-five years. It must be borne in mind, however, that the expectation of life in Orientals is about ten years less than in Europeans—that is to say, a native of India is at forty-five years of age comparatively as old a man physically and sexually as a European is at fifty-five years. Even in Europeans we occasionally meet with instances of true enlargement at an earlier age; but they are not sufficiently numerous to invalidate the general rule laid down.

It is estimated from statistics collected by the late Sir Henry Thompson and others that about 33 per cent. of men beyond fifty-five years of age are subject to enlargement of the prostate, but that not more than 5 per cent. ever suffer from symptoms.

The overgrowth may be uniform in character, the hypertrophy extending equally to both lobes, the gland thus preserving its symmetry. But in the fully hypertrophied prostate, as will subsequently appear, the pyramidal contour of the organ becomes reversed—that is to say, whereas in the normal prostate the apex of the pyramid lies towards the triangular ligament and the base towards the bladder, in the hypertrophied prostate the base of the pyramid lies towards the triangular ligament, the apex being placed in the bladder. The manner in which this alteration in shape is gradually brought about during the process of enlargement of the organ will appear later on.

The two lobes may be unequally enlarged; indeed, one lobe may be enormously hypertrophied, the other remaining almost unaltered except as to the shape impressed on it by the bulk and pressure of the other lobe. The surfaces of the lobes may remain smooth and uniform, but frequently bossy outgrowths project therefrom. These outgrowths are always confined within the true capsule of the prostate; though, carrying the capsule before them, they may form polypoid-like outgrowths projecting into the cavity of the bladder and connected with the main body of the organ merely by narrow pedicles (Fig. 1, c, c', c'').

In size the enlarged prostate may reach from anything beyond the normal to that of an orange, or even a cocoanut. The largest prostate that I have removed (Fig. 37) weighed $14\frac{1}{4}$ ounces.

The urethra and bladder will be altered in shape in accordance with the size and form of the overgrowth. The prostatic urethra is invariably lengthened and may attain to several inches, so that 15 or 16 inches of catheter may be introduced before the urine begins to flow. When the lateral lobes are symmetrically enlarged, the urethra is compressed from side to side, and on section resembles a vertical slit. When one lobe only is enlarged, the urethra, being diverted to the opposite side, will be curved laterally. If there be a median outgrowth in the bladder, the urethra will be curved upwards towards the inner orifice; and if this be very large, pyriform, and projecting into the bladder, there will be a channel on either side, the urethra being Y-shaped. When the overgrowth assumes the form of a collar round the neck of the bladder, as it sometimes does, the urethra will necessarily be contracted at this situation.

The prostate being debarred from expansion below by the triangular ligament, in its enlargement it gradually advances upwards in the direction of least resistance. The urethra is

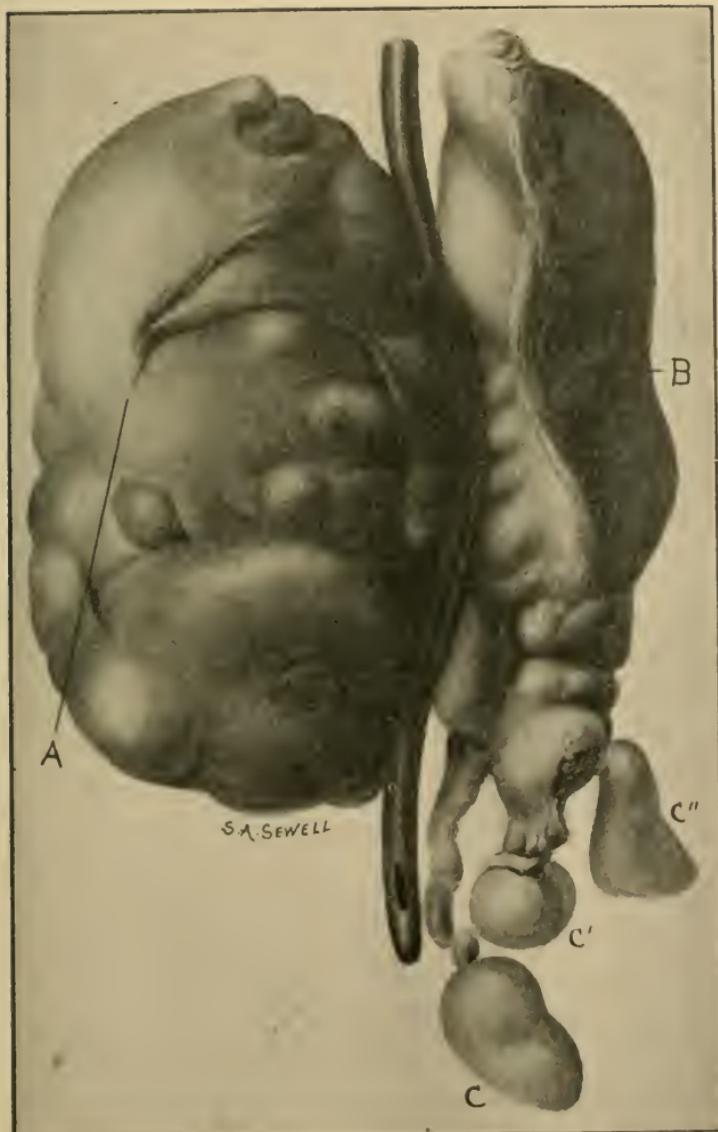


FIG. 1.—LARGE PROSTATE, WEIGHING 6 OUNCES, REMOVED FROM PATIENT AGED SEVENTY (CASE 7).

A, Left lobe enormously hypertrophied; B, right lobe, elongated, flattened, terminating in outgrowths, C, C', C'', in the bladder. The catheter lies in position of urethra, which was very tortuous.

carried with it, and the inner orifice placed on a higher level than the base of the bladder, which remains stationary. A post-prostatic pouch is thus formed in the bladder, which is never emptied of urine during the acts of micturition. This remaining quantity of urine, which is termed 'residual,' gradually increases in quantity as the hypertrophy progresses and the muscular power of the bladder diminishes, owing to the persistent overstrain that the organ is subjected to in order to overcome the obstruction to the flow of urine. In the early stages of the disease there is a compensatory hypertrophy of the bladder walls to overcome this obstruction, but in time, owing to the constant straining, dilatation ensues, so that the bladder may contain several pints of urine. The walls may become extremely thin, or muscular trabeculæ may develop, between which the mucous membrane bulges outwards, forming saccules of various sizes. In course of time changes occur in the ureters and kidneys from the backward pressure due to the obstruction of the urinary flow—changes similar to those taking place in connection with stricture of the urethra. Hæmorrhoids and prolapsus ani also occur frequently in connection with this disorder from the constant straining in micturition.

Theoretical Causes of Prostatic Enlargement.

Many theories have, from time to time, been put forward to account for the enlargement of the prostate peculiar to declining life, none of which, however, can be said to fit completely with all the phenomena attending this disorder. I shall confine myself to stating briefly some of the rival views.

Guyon and the French school generally maintained, at least till quite recently, that the enlargement of the prostate is not a purely local disease ; that it is merely a local manifestation of a constitutional disorder which commences with

general arterial sclerosis and ends in fibroid degeneration ; that the genito-urinary organs—prostate, bladder, ureters, and kidneys—are liable to undergo this change in a pronounced form, the muscular and glandular structures being replaced by dense fibrous tissue, but that these latter changes are never independent of general atheroma. The enlargement of the prostate and changes already described as taking place in the urinary tract behind are held to be coincident and not related to each other as cause and effect. It is pointed out in this connection that all the symptoms commonly regarded as the result of hypertrophy of the prostate may occur when there is no enlargement of that organ, as a result of sclerosis of the bladder.

Against this theory it is urged, that the fact that atheroma and enlargement of the prostate occur together is no proof that the latter is the result of the former—as well might cancer and other diseases which are liable to occur during the atheromatous age be attributed to this degeneration ; that enlargement of the prostate occurs when there is no such general atheroma of the system ; that arterial sclerosis induces atrophy rather than hypertrophy ; that enlargement of the prostate frequently commences before the atheromatous period ; and that this enlargement always commences as adenomatous overgrowth, and not as fibroid degeneration.

One of the most important effects, from a surgical point of view, of the acceptance of Guyon's theory, if carried to its logical conclusion, would be to prohibit the employment of any form of operative interference aimed at the radical cure of the disease—to limit the treatment, in fact, to the palliative kind.

Another theory is that propounded by Velpeau, and till recently supported by some of the highest authorities in this country and America, notably Thompson and White—viz.,

that enlargement of the prostate is analogous to fibroid disease of the uterus. In support of this view it is pointed out that the utricle of the prostate is the equivalent of the uterus (and vagina); that the structure of the prostate and uterus are somewhat similar; that there is a great resemblance in structure, position, and mode of growth between the fibro-myomata found in the uterus and the overgrowths that constitute enlarged prostate; and that the disease in both instances sets in when sexual activity is on the wane, and does not originate when that activity has completely ceased.

In opposition to this view are advanced the facts that the utricle, which is the true analogue of the uterus, takes no active part in the prostatic enlargement, and that the uterine tumours commence as fibro-myomata, whereas the prostatic overgrowths originate as adenomata.

The theory that enlargement of the prostate is of inflammatory origin dates back to the days of John Hunter, who advanced this view. Virchow also held the same opinion. Many papers have been published in the past few years advocating this theory. But its ablest champion is Ciechanowski, who explains the sequence of events as follows: 'A catarrhal process occurs in the acini, producing active proliferation, desquamation, and degeneration of the epithelium; at the same time a productive change takes place in the stroma, which compresses the excretory ducts of the acini, narrowing or obliterating them. The latter prevents the escape of the contents, the secretions accumulate within the acini, and the lobules enlarge. The prostatic urethra is said to be the origin of the disease, which extends thence along the gland ducts from the urethra towards the periphery of the prostate.'

The advocates of this theory hold that the disease is confined mainly to persons who have suffered from posterior urethritis previously, whether due to gonorrhœa, masturbation,

or sexual excess (whether natural or unphysiological). But they entirely fail to explain how it happens that the enlargement of the prostate does not occur during that period of life—viz., early manhood—when these diseases and conditions that are held to be the cause prevail, except that the process remains latent for years till even the existence of the provoking conditions has in many instances faded from the memory.

I have in many hundreds of cases of enlarged prostate inquired carefully into the previous history of each person, and my experience goes to show that the previous mode of life of the patient has nothing whatever to do with the advent of this disease. It occurs with equal frequency in those who have suffered from urethritis and those who have not; in the married and unmarried; in the continent and those who have indulged in sexual excess; in persons of sedentary as of active habits; in the gourmand as in him who has eaten sparingly all his life.

All we know of the disease is that the enlargement of the gland is mainly, if not wholly, of an adenomatous character, and that it occurs only during the decline of life when the sexual functions are on the wane. Having fulfilled its purpose as an accessory sexual organ in early and mature manhood, as its function diminishes the gland has a tendency in disease to 'run to seed,' as it were, in assuming this unhealthy adenomatous overgrowth; but why it does so has yet to be explained.

It is true, as will subsequently appear, that the usual symptoms of enlarged prostate may occasionally be induced in advanced life by an attack of inflammation, or even congestion, of the prostate; but in such cases there is practically no enlargement of the organ at all, and certainly no enlargement of an adenomatous nature as in true prostatic hypertrophy of declining life.

Symptoms.

We now come to the symptoms of enlarged prostate. A man aged over fifty years consults you because (1) he finds that for some time he has suffered from increased frequency of micturition which troubles him more at night than throughout the day; (2) he has some difficulty in starting the stream; (3) there is diminution in the strength of the urinary flow, which, instead of being projected in the normal curve, falls directly downwards from the meatus simply by its own weight; (4) he strains to propel the urine onwards, but his efforts have little or no effect in strengthening the stream; on the contrary, the straining may arrest the flow completely; (5) there is incomplete stoppage, as indicated by dribbling at the end of micturition; and (6) there may be intermittency of the flow due to the ball-valve action of the outgrowth in the bladder. If the patient does not complain of pain, beyond, perhaps, an undefined aching about the perineum, and there is no hæmaturia, the case is in all probability one of enlargement of the prostate in a comparatively early stage.

It will be observed that none of the symptoms are referable to the prostate itself. They are attributable to interference with the functions of the urethra and bladder caused by changes in the gland, which are so gradual that they do not cause pain like inflammation or malignant disease. As the disease progresses, unless relieved by art, all the symptoms are aggravated, and others, notably pain and hæmaturia, supervene.

In the early stages of the disorder the increased frequency of micturition is due to some outgrowth at the neck of the bladder, which acts as an irritant, like a foreign body, to this the most sensitive portion of the organ. Local congestion or even inflammation of the mucous membrane ensues, and this

induces further frequency. Later, another factor comes into play: a post-prostatic pouch is formed in which a gradually increasing quantity of urine is retained after micturition. This retained urine is, as we have already seen, termed 'residual,' and the manner in which it causes increased frequency requires some explanation.

The bladder is a reservoir capable of containing a certain quantity of fluid, which is voluntarily discharged at convenient intervals. Let us assume that the quantity passed in twenty-four hours is 50 ounces, and that the capacity of the bladder is 10 ounces. It will thus be necessary to empty the bladder at least five times in the twenty-four hours. But if, the actual capacity remaining the same, a pouch is formed in the bladder containing, say, 4 ounces of urine that is never expelled, it follows that the *effective* capacity is reduced to 6 ounces, so that in order to get rid of the 50 ounces that daily flow into it the bladder must be discharged of these 6 ounces about eight times. As the pouch enlarges and the bladder walls grow weaker the quantity of fluid permanently retained increases and its *effective* capacity diminishes, so that eventually micturition has to take place every half-hour or even less. Indeed, this condition may advance to such an extent that the bladder is incapable of discharging any urine whatever, when we have another symptom—viz., continuous dribbling—the urine passing away by day and night as rapidly as it enters the bladder, but the latter always remaining full. The urine passing in this condition is termed the 'overflow,' and has to be distinguished from 'incontinence,' a rare occurrence in certain spinal complaints in which the urine runs away from an empty bladder.

The frequency of micturition is, as already stated, worse at night, or, rather, towards the latter part of the night, and in the early morning on rising; in this respect contrasting with the frequency due to stone, which is always worse in the day-

time when the patient is going about. Why this should be so has not as yet been satisfactorily explained. It cannot be due to the recumbent position alone, for it does not occur in the daytime if the patient keeps lying down, provided he remains awake. It may, as has been suggested, be due to the fact that during the first sleep of the night the bladder is not relieved for a longer period than usual. Distension of the bladder results, with congestion, giving rise to increased frequency, which does not cease for some hours till the congestion has subsided.

The urine in the early stages of the disorder is clear and acid. The quantity will probably be increased and the specific gravity be lowered—changes due to fibroid degeneration of the kidneys met with in elderly persons, particularly when prostatic obstruction is also present. As the disease advances the urine becomes cloudy and gives off a fishy odour. Sooner or later the urine has a tendency to decompose, whether as a contingency of catheterism or otherwise, cystitis sets in, and pus is deposited on the bladder walls in thick flakes. This condition is favourable to the formation of phosphatic calculi, which are a frequent complication of enlarged prostate, lying in the post-prostatic pouch or in the cysts formed, as already described, by the bulging out of the mucous membrane between the muscular trabeculæ.

Diagnosis.

With the presence of symptoms that point to the probable existence of enlargement of the prostate we proceed to verify our diagnosis by a physical examination of the urethra and rectum.

The patient is first directed to pass all the urine he can, and we note the strength and general character of the stream. He is then placed on his back on a couch ; the glans and foreskin are thoroughly washed with an antiseptic, and a

catheter, 13 or 14 of the French scale (7 or 8 E.), is slowly and carefully introduced. Our choice of catheters will lie between a Jaque's vulcanized rubber (Fig. 2), a very pliant cylindrical gum-elastic, or a French coudée (Fig. 3). This latter is, as a rule, the most easily introduced. It should be held almost horizontally at first, with the curved point turned downwards, and gradually elevated into the perpendicular position as the instrument passes onwards through the urethra and into the bladder. It should be noted if there be any obstruction at the neck of the bladder, and if the end of the catheter rides over it, which would probably indicate a



FIG. 2.



FIG. 3.

prostatic outgrowth in the bladder. The quantity of urine drawn off, if any, indicates the amount of 'residual' urine. This will vary from a few drachms to 3 or 4 pints, according to the stage the disease has reached when the patient first comes under examination. If the quantity be considerable he will express surprise, seeing that he had just previously passed urine, and was under the impression that he had emptied his bladder. If the quantity of urine be large, the whole of it should not be drawn off at the first interview, lest the patient may faint, or haemorrhage set in from the vessels of the bladder giving way through loss of their habitual support. If the quantity be moderate, a second or third examination should be made to avoid error as to the real

amount of the 'residual' urine. Before introducing the catheter the hypogastric region should be palpated, for in this way it may at once be recognised that the bladder is distended with urine.

We next make a digital examination of the rectum. The forefinger is lubricated, the crevice beneath the nail having been previously filled with soap, and introduced slowly and gently to avoid giving pain, and a careful survey of the prostate is made. The extent of the enlargement, if any, should be noted, and whether this is general, or confined more to one side than the other; whether the contour of the gland is smooth or nodulated; what its consistency, whether soft, indicating adenomatous enlargement, or hard from inflammatory fibroid overgrowth; also if pressure on the gland gives pain, and, if so, to what degree. Much pain with fluctuation would suggest the probability of abscess, particularly if the patient has had fever recently. Intense hardness with nodulation would suggest malignant disease; and a very hard nodule in the substance of the gland, accompanied by tenderness on pressure, the presence of a calculus in the organ. The finger should pass beyond the gland if possible, and sweep the base of the bladder, to ascertain if this is normally soft, or hard from cancerous infiltration. Possibly a stone may be felt in the post-prostatic pouch. The examination will be facilitated by making counter-pressure on the abdomen above the pubes with the other hand.

The patient should next be placed on his knees on the couch, with his head bent forwards and downwards, and the buttocks rendered prominent by the thighs being flexed on the legs. The finger is again introduced and the rectum surveyed as before. This position renders the prostate more prominent in the rectum than the recumbent one, and the finger can be introduced farther. The impressions conveyed

to the finger in both positions are contrasted, and important information may thus be acquired.

Little information with reference to the condition of the amount of outgrowth in the bladder will be gained by rectal examination. In fact, there may be great outgrowth of the prostate into the cavity of the bladder when no enlargement of the gland is recognised by the rectum. It will, as a rule, be desirable to ascertain the extent and form of this enlargement. A rough estimate can be arrived at by the introduction of a short-beaked sound. When the instrument has entered the bladder, the handle is depressed between the thighs, and the beak rotated to one side and then to the other, feeling on which side of the instrument the enlargement lies, and to what extent it projects into the bladder. If the finger be introduced into the rectum whilst the sound is in the bladder, a rough idea of the size of the outgrowth may be formed.

Examination of the bladder by the cystoscope will in a large proportion of cases give a still more correct estimate of the size and shape of the outgrowth, and as to whether or not the gland is capable of being removed by operation in a manner that will be described later. At our first visit, however, it will not be advisable to employ either sound or cystoscope. This should always be deferred to a later interview, when the patient should be examined in his own room. At the first visit we rest content with the information gained by the catheter and by rectal examination, taken in connection with the general symptoms.

After examination the patient should go home and to bed for the day. Indeed, when the case is at all far advanced and the patient feeble, it will be advisable to postpone the introduction of even a catheter till he is in his own room.

LECTURE II

GENERAL TREATMENT OF ENLARGED PROSTATE AND ITS COMPLICATIONS

PASSING on to the treatment of enlargement of the prostate, you are aware that in this field of research considerable activity has been displayed by surgeons in recent years as regards operative interference. Holding, as I do, that in the vast majority of cases of this malady there is only one form of treatment worthy of consideration—viz., total enucleation of the diseased organ—the time has not yet come, and probably never will, when the employment of the catheter can be entirely dispensed with in practice. It is to its judicious use that I shall in large part direct your attention in this lecture, at the same time referring to other subjects connected with the general management of the disease under consideration.

When enlargement of the prostate is unattended by any symptoms, no treatment is necessary. If, however, decided symptoms of obstruction are present, but the bladder contains no 'residual' urine, or only an ounce or two, the question arises as to what treatment, if any, is desirable. In such cases I am in the habit of passing a large steel dilator (Fig. 4) as far as the bladder once a week, and leaving it in position for ten or twelve minutes, commencing with a No. 11 or No. 12, English scale, and gradually advancing to No. 15 or No. 16. I entirely concur in the opinion of my

colleague, Mr. Reginald Harrison, as to the beneficial effect of this simple procedure. It probably does not stay the progress of the disease, but the periodical introduction of the dilator causes absorption of the gland around the urethra and maintains the patency of the channel, thus staving off for an indefinite period the necessity of having recourse to habitual catheterism.

It is customary in cases of this kind in the incipient stage of enlargement to administer ergot, with a view to causing reduction, or retarding the advance, of the outgrowth. I am in the habit of employing the liquid extract of this drug



FIG. 4.

combined with a saline, both in hospital and private practice. It is difficult to say definitely whether the ergot has any effect in staying the advance of the enlargement, but it seems to relieve congestion, and patients undoubtedly express themselves as improved under its administration.

It will, as a rule, be unnecessary to have recourse to the habitual use of the catheter till the residual urine amounts to between 3 and 4 ounces; but if the frequency of micturition at night is such as to affect injuriously the patient's health through want of sleep, it will be desirable to commence earlier. When, however, about 4 ounces of residual urine have been reached, habitual catheterism must be employed, and the patient enters on what is termed 'catheter life,' from which he can scarcely ever recede without an operation. When the 'residual' urine is limited to 4 ounces or less, it will, as a rule, be sufficient to pass the catheter once in the twenty-four hours, and the best time for doing this is at bedtime, so that

he may have several hours of sleep afterwards. If 6 ounces are retained, the catheter should be employed twice daily; if 8 or 10 ounces, three or four times daily. When all power of voluntary micturition is lost, the catheter must be used whenever the desire for urination is decidedly felt, generally every four hours or so. On no account should the patient be limited to any specific time within which he should not employ the catheter. The urine should be drawn off before pain or marked discomfort is felt, otherwise congestion of the prostate and bladder resulting in cystitis will be produced.

The patient must be taught how to use the catheter, and he should never be without one—that is to say, if he leaves home on a journey, or in the course of his ordinary occupation, he should always carry one about with him, for he may find at any time that its employment is imperative. Indeed, the sooner the patient recognises that the primary duty of his life, under such circumstances, is the employment of his catheter the better.

A soft coudée catheter (Fig. 3), No. 7 to 9 E., whichever passes most easily, is, as a rule, the best for habitual employment. The patient, unless very infirm, passes it standing. There is now no danger of syncope, for the quantity of urine allowed to accumulate is limited, and during the period of instruction in the use of the catheter that he will have undergone at the hands of the surgeon he will have acquired confidence in its use. The instrument is held perpendicularly whilst its end is introduced into the urethra. It is then gradually depressed into the horizontal position, as it glides along the canal over the obstruction and into the bladder, the curved end being directed upwards towards the roof of the urethra. Sometimes a well-polished vulcanized rubber catheter (Fig. 2) answers best. A timid patient likes it, as less liable to pain him; but if the prostatic urethra is narrowed from pressure of the lateral lobes it is not so easy

to introduce as a more rigid instrument. It has also the disadvantage that, its walls being stout, the channel is comparatively narrow, so that the urine, if at all thick, will not flow through it readily. On the other hand, as it can be boiled without injury, it is readily rendered aseptic, and as it coils up in a small space it can be carried about very easily. A soft and pliant cylindrical catheter will pass readily and



FIG. 5.

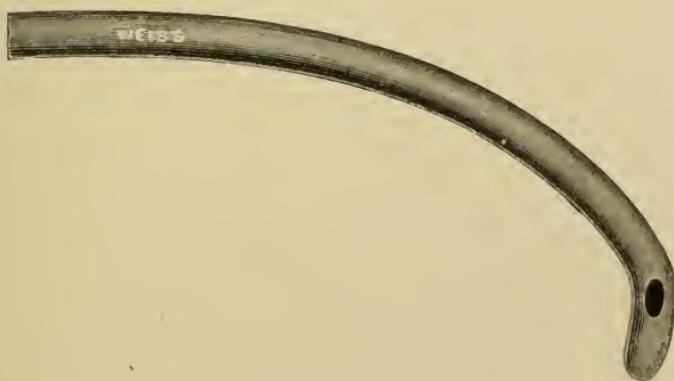


FIG. 6.

answer best when there is no obstruction caused by the outgrowth in the bladder. When this outgrowth is very marked, a bicoudée catheter (Fig. 5), or a well-curved one terminating in a coude (Fig. 6), may be necessary to overcome the obstruction. Formerly it was customary to keep catheters mounted on a well-curved metal stylet ready for use; they are now woven with this curve in their manufacture and retain their shape permanently.

It will be rarely desirable for a patient himself to pass a metal catheter. When circumstances arise requiring its employment, the surgeon should be called in.

Whatever instrument is employed it must be kept scrupulously clean. The life and comfort of the patient depend not less on the cleanliness of his catheter than on the judicious use of the same. It will not be out of place, therefore, if I here direct your attention to the antiseptic precautions necessary in the employment of urethral instruments in general.

The instruments required for catheterism are of three kinds —metallic, soft rubber, and gum-elastic. The first two are most easily and effectually sterilized by boiling. They should be thoroughly washed and syringed through with soap and warm water, and then boiled for ten minutes, after which they are transferred to boric lotion ready for use. Gum-elastic instruments cannot be boiled without injury. They are best cleansed by washing and syringing them through with soap and warm water, and then placing them in a 1 in 40 solution of carbolic acid for ten minutes, after which they are placed in boric lotion before use. Prolonged application of strong antiseptics renders them rough and dangerous.

Before introducing an instrument of any kind into the bladder, the foreskin and glans should be well washed with soap and warm water, and then swabbed with some weak antiseptic lotion. If there be any discharge from the urethra, the anterior part of the canal should be syringed out with warm boric lotion, but otherwise this precaution is unnecessary. Bacteriologists tell us that even the healthy urethra swarms with organisms that cannot be completely got rid of by the most thorough irrigation by antiseptic lotions, so that, theoretically speaking, the introduction of an instrument into the bladder ought to be attended fre-

quently by infection of the urine. Clinical experience, however, teaches us that with the simple precautions indicated this may be avoided.

It is useless to lay down an elaborate ritual of urinary asepsis which cannot be followed out in practice by the patient himself. If we only reflect on the frequency with which a man who has entered on catheter life has to pass an instrument, and the circumstances under which he has often to do so, it is obvious that the means of keeping his catheter aseptic, to be efficient, must be as simple as possible. Fortunately in soap and water we have an efficient, convenient, and practical method of cleansing catheters, and this is what most patients have to rely on, and that with impunity. After using the catheter it should be again washed as before, thoroughly dried, and then placed for future use in a corked glass tube or covered dish. The best way of drying soft catheters is by pressing them between folds of lint or gauze, in which they may be kept till again required.

The powerful antiseptic properties of trioxymethylene, a white powder obtained by evaporation of formol, have recently been taken advantage of on the Continent for sterilizing gum-elastic catheters. This powder gives off slowly a vapour which is really formol in its gaseous form. If the catheters be placed quite dry on trays in an air-tight box (Fig. 7) with this powder enclosed between folds of lint, they are rendered quite aseptic in twenty-four hours by the vapour given off. Before use they should be placed in boric lotion, as the formol is slightly irritant to the mucous membrane of the urethra. The catheters can also be sterilized in a glass tube fitted with a cork (Fig. 8) containing the powder, which evaporates through a fine grating on its inner aspect.

As lubricants for instruments, fresh olive- or castor-oil or vaseline may be used. Carbolic acid should not be added; it irritates the mucous membrane if the proportion used be

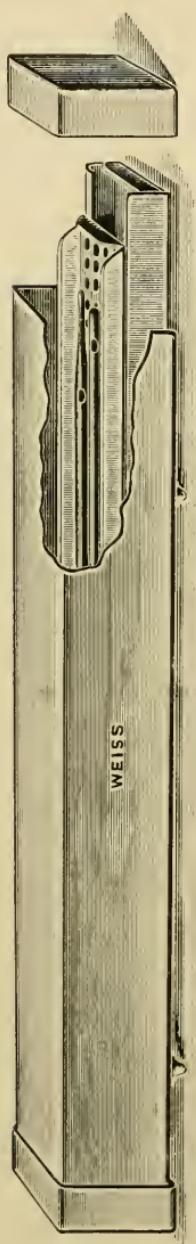


FIG. 7.—JANET'S CATHETER STERILIZER.

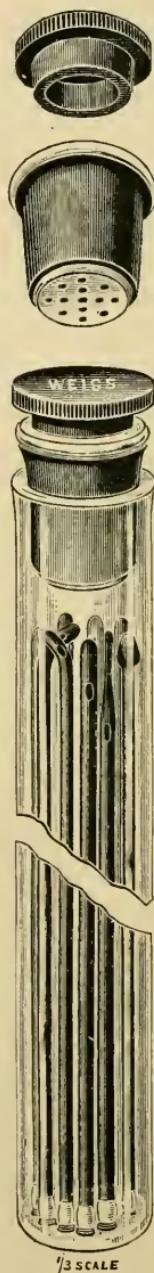


FIG. 8.—DENOS'S CATHETER STERILIZER.

of any strength, and weak carbolized oil has practically no sterilizing effect. Guyon's pomade, composed of equal parts

of glycerine, powdered soap, and water with 1 per cent. of phenol or naphthol, is a clean and efficient lubricant.

The general, or hygienic, treatment is most important. The diet should be light, simple, and nutritious. Vegetables and fruit, particularly baked or stewed apples, should be taken regularly; but tomatoes, asparagus, and rhubarb should be avoided, as they act as irritants to the urinary tract. The less stimulants taken the better. The clothing must be adapted to avoid cold; the patient should be swathed in flannel. Sitting on cold or wet seats should be particularly avoided, to guard against congestion of the prostate. The daily warm bath, best taken at bedtime, promotes the action of the skin and relieves local congestion about the prostatic region. The most important part of the general treatment is the regulation of the bowels. If they become at all constipated the urinary symptoms are aggravated. Measures should, therefore, be taken to induce a soft, but not liquid, motion daily. There is nothing better than confection of sulphur or senna, or equal parts of both. Aloin, liquorice-powder, and the sulphate of soda are useful, or one of the natural bitter saline waters may be taken in the morning. The enema should always be at hand for use in case medicines should fail to induce a daily motion. If pain be present, an opiate must be given by the mouth, hypodermically, or as a suppository. On no account should belladonna be administered whilst the bladder retains any vestige of expulsive power, owing to its paralyzing influence on the muscles of that organ. Walking or carriage exercise should be taken daily, rough roads being avoided; but riding on horseback or on a bicycle should be abandoned on account of the shaking or direct pressure on the prostate caused thereby. The patient should as far as possible pursue his ordinary avocation and pleasures, but sexual excitement should be avoided.

Complications and Difficulties.

There are certain difficulties and complications incident to catheter life to which I will now direct your attention.

When the surgeon is consulted at a comparatively early stage of the disorder, before the residual urine amounts to more than a few ounces, if careful asepsis be employed in the introduction of instruments, the entry on catheter life is effected without any constitutional or local disturbance, and matters run smoothly.

If, however,—and this is what happens in a large proportion of cases that come under observation,—through wrong advice, or that timidity about consulting the surgeon that induces elderly men suffering from urinary troubles to put off what they regard as the evil day as long as possible, the symptoms have existed for a long time, there is difficulty and frequency of micturition with some pain, the urine is turbid, possibly fetid, the patient looks ill and worn-out, and the hypogastric dulness points to the presence of a considerable quantity of residual urine, the case must be regarded as one of considerable gravity. The employment of the catheter for the first time under these conditions is likely to be attended by constitutional disturbances, sometimes of severe character. The examination of such a case had better not be completed in the consulting-room—that is to say, you should defer drawing off the urine till the patient goes home. The examination should be completed in a warm room, so that the patient can go to bed immediately afterwards, where he should remain for two or three days in any case, and for a longer period should constitutional disturbances set in. To relieve the distended bladder and then allow the patient out in the cold is injudicious surgery. In hospital practice, when the catheter is employed in a case of this kind in the out-patient department, the man should be at once

admitted to bed. If the quantity of residual urine be large, only about half should be drawn off on first introducing the catheter. The quantity removed should be increased at each subsequent introduction, and the bladder not completely emptied for two or three days, during which the patient should be under close observation. If he be too infirm or nervous to pass the catheter himself, an experienced nurse should be employed for this purpose.

Urinary Fever in connection with Catheterism.

In an advanced case of prostatic disease of this kind the urine, even when clear and acid on the first introduction of the catheter, generally becomes clouded, and eventually ammoniacal, in the course of a few days, and constitutional symptoms supervene. A rigor will probably occur, or even without this the temperature may rise to 103° or 104° F., profuse perspiration sets in, and, the normal temperature being reached, the fever may not recur. Sometimes more than one attack of this kind occurs, or the fever may be of a continuous character for some days, gradually subsiding; but occasionally the patient sinks into a low typhoid state, with dry, furred tongue, feeble pulse, and great thirst; and if the kidneys are much affected, uræmia, followed by coma, may set in, resulting in a fatal termination. This fever is variously termed 'urinary,' 'urethral,' and 'catheter,' but its exact cause—whether septic or neurotic—it is impossible with our present knowledge definitely to state. Certainly it occurs under the strictest antiseptic precautions and with the utmost skill in passing the catheter. The general treatment of this fever is similar to that following instrumentation or operation for stricture of the urethra, except that, owing to the advanced age and debility of the patient, it must be more sustaining, stimulants in moderation being

allowed. When the urine contains pus, the local treatment will be the same as that presently to be described for cystitis.

Cystitis.

This, as we have already seen, is a common complication of enlarged prostate, so that we must always be prepared to deal with it in its earliest stage. When the urine has a tendency to become cloudy, and gives off a fishy, offensive odour, a useful drug to administer is boric acid, which may

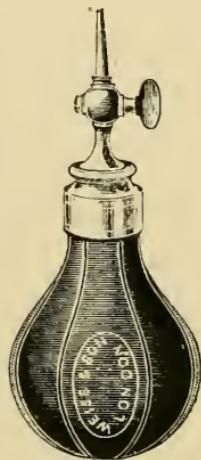


FIG. 9.

be given in 10-grain doses three times daily. A patient of mine, himself a medical man, who for years has been dependent on his catheter, informed me that he found two or three large doses of 25 grains each more effectual in bringing the urine back to its normal condition than repeated small doses; and I have since then frequently verified this experience in practice. If the urine becomes decidedly alkaline, the boric acid should be combined with the benzoate of ammonia in 10-grain doses. Urotropin in doses of from 5 to 10 grains three times daily is the most efficient drug for this condition. This is particularly effective when the urine contains pus and mucus.

When pus forms, the bladder must be washed out once or twice daily with disinfectants or astringent lotions. A 4-ounce indiarubber bottle fitted with nozzle and stopcock (Fig. 9) is the most convenient apparatus to employ for the purpose. It should be completely filled with the lotion, so as to avoid the introduction of air into the bladder. Not more than between 2 and 3 ounces should be thrown into the bladder at one time, though it may be necessary to repeat this process several times before the fluid returns

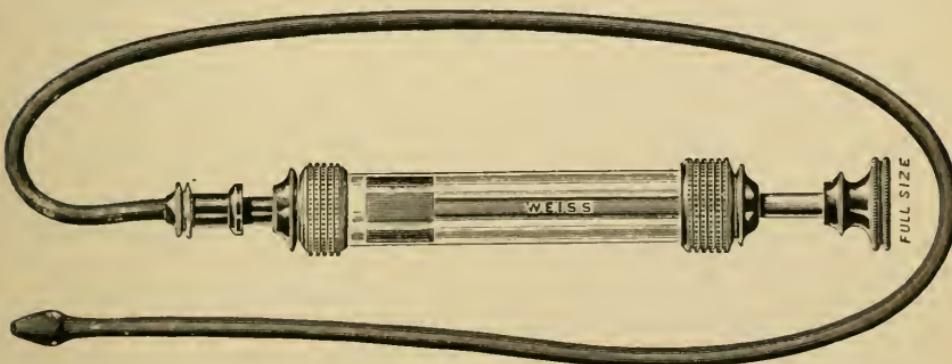


FIG. 10.

unaltered. If, however, the cystitis be severe, not more than $\frac{1}{2}$ ounce should be introduced, as the bladder walls are under such circumstances extremely intolerant of tension. All lotions should be used warmed to about 100° F. For cleansing the bladder the most simple and useful injections are a half-saturated solution of boric acid, or a teaspoonful of boro-glyceride to 4 ounces of water. Permanganate of potash solution, commencing with 1 in 5,000 and gradually increasing it to 1 in 1,000, and perchloride of mercury, 1 in 10,000, make excellent injections. But our sheet-anchor in such cases is nitrate of silver. Commence with a very weak solution, 1 in 4,000, gradually increasing the strength to 1 in 750. It is rarely that the bladder will tolerate a

stronger solution. I have found solution of resorcin, from 3 to 5 per cent., an excellent injection.

When there is great pain and scalding at the neck of the bladder from local cystitis, there is nothing to equal daily 'installations' of a strong solution of nitrate of silver. The urine is first drawn off and the bladder is washed out with boric lotion. The olivary tip of a Guyon's catheter-syringe (Fig. 10) is then passed just through the membranous portion of the urethra, and a drachm of the solution, gradually increased from 1 to 3 per cent., is slowly injected. This trickles back into the bladder and is allowed to remain there.

Complete Retention of Urine.

This is liable to occur suddenly at any time in connection with enlarged prostate, through congestion and swelling of that organ closing up the already narrowed passage. The congestion may be due to cold, sitting on a wet seat, errors in eating and drinking, sexual excesses, an attack of gout, or injury of the prostate by the catheter. Immediate relief of this retention is imperative—by means of the catheter if possible, otherwise by operative interference. It will be advisable to waste time by having recourse to hot baths and opium, as in the case of retention from stricture, for the patient being old and the muscular power of the bladder already impaired, any delay may culminate in complete and permanent atony of the bladder from overstretching of its muscles. To relieve the retention catheters of various kinds are employed. First, a vulcanized indiarubber catheter should be used. It is astonishing how retention may occur and still little or no resistance be offered to the entrance of a soft instrument of this kind. If this fail, a coudée catheter, and a well-curved one terminating in a coude, should be tried in succession. If still unsuccessful, a well-curved cylindrical

gum-catheter without a stylet should be employed. This instrument may be given any curve at pleasure by dipping it in hot water, bending it into the necessary shape, and then plunging it into cold water, when it retains its new form. If we fail with this, we employ the same catheter mounted on a stylet. As soon as the end of the instrument reaches the obstruction the stylet is partly withdrawn—a manœuvre which has the effect of causing the end of the catheter to project upwards and forwards, thus frequently entering the bladder. Finally, it may be necessary to employ an ordinary silver catheter, or one with a longer curve. The utmost gentleness should be used, force of any kind being avoided, lest a false passage be made, or haemorrhage caused by injury to the prostate. When a median outgrowth is the cause of the obstruction, and the end of the metal catheter fails to ride over it, the point should be directed right or left with a view to hitting off the channel that exists on either side of its neck. If there be much difficulty in introducing a flexible catheter, it should be tied in for two or three days, but a metal instrument should, as a rule, be withdrawn. If we fail to introduce any kind of catheter, temporary relief may be given by suprapubic aspiration, after which in the course of a few hours a catheter may pass in readily; should this fail, it will be necessary to open the bladder suprapubically and drain it for a time.

If the retention occurs in an early stage of the enlargement, whilst the expulsive power of the bladder is still unimpaired, it is possible that after the use of the catheter for a few days the bladder may return to its normal state and habitual catheterism be unnecessary. But when the disease is far advanced, and the retention has existed for some time, it is rare for the bladder to retain its contractile power sufficiently to overcome the prostatic obstruction.

An attack of retention is almost invariably followed by

constitutional symptoms, so that the patient will have to remain in bed for several days, and the treatment generally will be the same as that already indicated when habitual catheterism is entered upon.

The Pre-prostatic Pouch.

In cases of enlarged prostate of long standing we may find that before the bladder is fairly entered a pre-prostatic pouch is encountered—that is, a pouch lying in front of the median outgrowth, and bounded on either side by the lateral lobes of the prostate, and which may permit the beak of a sound to rotate freely within it. I have not observed any reference to this pouch in the text-books, but its existence is of great importance. I have frequently known it to be mistaken for the true bladder cavity. Composed of the dilated prostatic urethra and that portion of the bladder cavity lying in front of this median outgrowth, it, as a rule, contains urine which is drawn off by the catheter, thus giving rise to the impression that the main cavity of the bladder has been entered. Recently I was called in consultation to see a case of this kind in which the medical attendant could only draw off about half an ounce of urine each time he introduced the catheter, but without relief to the patient, though the medical attendant felt sure that the bladder was entered. There was great distension of the bladder, felt above the pubes, which was attributed to blood-clot, as the patient was subject to periodic attacks of hæmorrhage. By means of a well-curved coudée catheter I was enabled to effect an entrance to the main cavity of the bladder and to draw off 3 pints of blood-stained urine, but in doing so I recognised a large pre-prostatic pouch from which the urine had previously been drawn.

A stone may form in this position. I have removed several such calculi, generally by litholapaxy, the cavity being suffi-

ciently large to permit me to work a child's lithotrite in it. I have also known calculi lying in the main cavity of the bladder missed through the surgeon mistaking this pouch for the bladder proper.

Hæmorrhage from the Prostate.

Hæmorrhage rarely occurs in the early stages of enlargement of the prostate, but when the disorder is well advanced this is always liable to take place from various causes. The bleeding may arise from the mucous membrane of the bladder or from the prostate. During the early days after entry on the habitual use of the catheter it is liable to occur from the former source, when there was much distension from residual urine previously, due to rupture of the vessels from their being deprived of their accustomed support. As a rule, the hæmorrhage is trifling, merely discolouring the urine, without the presence of clots, and requires no particular treatment, the symptoms gradually passing off. Then, there may be hæmorrhage as the result of congestion of the prostate after exercise or exposure to wet and cold. This is seldom severe, and also passes off with rest. In advanced stages of the disorder there is frequently a varicose condition of the veins on the surface of the prostate, and some hæmorrhage may occur from rupture of these. The bleeding may be so profuse as to distend the bladder. On many occasions I have had to open the bladder suprapubically to turn out an enormous clot filling its cavity. But the most frequent cause of hæmorrhage is injury of the prostate by careless or unskilful use of the catheter, or from difficulty in passing the instrument. As a rule, the blood is mixed with the urine; but if the injury be on the prostatic urethra, or on the anterior surface of an enlarged median outgrowth almost blocking the orifice, the blood may flow away quite pure from the urethra.

The treatment consists in perfect rest in bed and the

administration of opium. The usual styptic drugs are of little or no avail. The blood-clots may be allowed to dissolve and come away with the urine. Washing them out through a full-sized catheter with a large eye may be tried, but care should be taken that this does not induce further haemorrhage. When, owing to difficulty in passing the catheter, bleeding occurs on each introduction, it is better to tie in a good-sized coudée catheter for a few days. If it gets clogged with clot, this may be displaced by gently injecting a little boric lotion from an indiarubber bottle.

Frequent haemorrhage attended by much pain after exercise in prostatic patients should always give rise to the suspicion of the presence of stone. If a calculus lie in a saccule projecting out from the base of the bladder, there may be intense agony during defecation if constipation exist, and the urine will generally be blood-stained afterwards. I have met with two cases of this kind in practice—one in which the symptoms were completely relieved after the stone was removed suprapubically, and the cause of the other was discovered only after death.

Orchitis is common in connection with enlarged prostate, as a result of catheterism or independently of this; and excessive tenderness of one or both testicles is sometimes found, quite apart from any inflammatory state of the organs. Urethritis and balanitis may occur, particularly in patients suffering from diabetes.

LECTURE III

THE AUTHOR'S OPERATION OF TOTAL ENUCLEATION OF THE ENLARGED PROSTATE IN ITS CAPSULE

IN November, 1900, I delivered a series of lectures in this College, in which I endeavoured to give a practical summary of our knowledge, as it then existed, of the disease generally known as 'hypertrophy of the prostate,' describing its pathology, symptoms, diagnosis, and various methods of treatment.

It was then pointed out that there is, perhaps, no other disease in the whole range of surgery for which so many and diverse modes of treatment have been advocated—a fact in itself suggestive of the unsatisfactory nature of most, if not all of them, so that at the time catheterism pure and simple, with all its disadvantages and dangers, reigned supreme in the practice of most surgeons as the least objectionable of all.

From time to time various procedures had been proposed and practised with a view to an attempt at radical cure of the disease, and a whole lecture was given up to a detailed description of the most important of them. [This lecture, which appeared in the first and second editions of this work, is now omitted, as the surgical procedures referred to have since been practically abandoned, and are now merely of historical interest.]

Most prominent amongst them may be mentioned partial

prostatectomy (whether by the urethral, perineal, or suprapubic route), castration, vasectomy, and Bottini's operation, which consisted in an attempt to burn away by the electric cautery the so-called 'middle' lobe of the prostate.

Each of these procedures enjoyed a temporary though transient notoriety. I ventured to hold that partial prostatectomy by the suprapubic route, first performed by Belfield of America, but best known in this country in connection with the name of McGill, who brought it prominently before the profession in 1888, was the most practical attempt at a rational method of dealing with the obstruction caused by the enlarged prostate.

The operation consisted in opening the bladder suprapublically and removing the prominent portions of the prostate in that viscus, or as much of it as possible, by means of scissors, forceps, and scoops of kinds. I myself had performed this operation on several occasions with some measure of success. But apart from the high mortality attending the procedure it possessed the disadvantage that, though frequently followed by the subsidence of the most prominent symptoms, temporarily at least, and rendering the employment of the catheter more easy, in a very large proportion of cases the bladder failed to regain its power of expelling the urine. This was due to the fact that the outgrowth in the bladder is, as a rule, not the only or, indeed, the chief cause of the obstruction, as was imagined, which is mainly due to the lateral pressure on the urethra by the enlarged prostatic lobes. Indeed, when once the bladder had completely lost its expulsive power—that is to say, when the whole of the urine had to be drawn off by the catheter—McGill's operation was practically incapable of restoring that power. Add to this the fact that, as only the prominent portions of the prostate in the bladder were removed, there was no immunity against recurrent out-

growth or general enlargement of the gland, and we realize in what a very limited sense this operation could be regarded as radical. Owing to these considerations the operation, after enjoying a temporary and fitful notoriety for a few years, may be said to have died out of surgical practice. It was replaced, first by castration and later by vasectomy, which was practised extensively during the closing years of last century. Experience has shown that both these procedures were practically useless, and that the former was not only attended by a very serious rate of mortality, but that it was frequently followed by grave disturbances of the mental balance. They no longer hold a place in practical surgery.

Shortly after these lectures were delivered, on December 1, 1900, I performed a new, and what seemed at first sight a very formidable, operation for radical cure of the disease—namely, total enucleation of the enlarged prostate. In a lecture delivered at the College in June, 1901, I gave full details of this and three further cases in which I had undertaken the operation, in all four, with complete success. Two of the patients were shown at the lecture in perfect health, able to retain and pass their urine as well as they ever did, though previously completely dependent on the catheter. The lecture was published in July, 1901,* and the operation was thus submitted for the consideration of the profession at large.

The complete success that followed these operations entirely revolutionized my views regarding the treatment of this widespread and painful malady, and opened up a new era in this branch of surgery. Since then I have from time to time published lectures and papers on several series of cases of my operation. In this manner full details of my first 206 cases have been placed before the profession.

* *British Medical Journal*, July 20, 1901.

Having now performed the operation in more than 300 cases, I propose in this lecture to review its present position, giving the latest details of the procedure, and describing the anatomical and pathological considerations that render it practicable.

A careful examination of the specimens removed in these operations throws an entirely new light on the anatomy of the prostate and its relations to the surrounding structures, and shows that the descriptions contained in the anatomical text-books generally are incomplete and erroneous in treating that organ as a single body with a canal tunnelled through it in the form of the prostatic urethra.

The prostate is in reality composed of twin organs, of apparently purely sexual function, which, in some of the lower animals, remain distinct and separate throughout life, as they exist in the human male during the first four months of foetal existence. After that period, in the human foetus, they approach each other, and their inner aspects become agglutinated together, except along the course of the urethra, which they envelop in their embrace.

These two glandular organs, which constitute the lateral lobes of the prostate, though welded together, as it were, to form one mass, remain, so far as their secreting substance and functions are concerned, practically as distinct as the testes, their respective gland-ducts opening into the urethra on either side of the verumontanum.

Each of these two glandular bodies, or prostates, is enveloped by a strong, fibro-muscular capsule; and it is these capsules—less those portions of them that dip inwards, covering the opposing aspects of the glandular bodies or lobes, and thus disappearing from view, being embedded in the substance of the prostatic mass—that constitute the true capsule of the prostate regarded as a whole. This capsule extends over the entire organ except along the anterior and

posterior commissures or bridges of tissue that unite the lateral lobes in front of and behind the urethra, thus filling in the gaps between them. This true capsule is intimately connected with the prostatic mass, and incapable of being removed from it even by dissection.

The urethra, accompanied by its surrounding structures—viz., its longitudinal and circular coats of muscles continued downwards from the bladder, its vessels and nerves—passes downwards and forwards between, and is embraced by, the inner aspects of the two glands or lobes.

The ejaculatory ducts enter the prostatic mass close together in an interlobular depression at the posterior part of its upper aspect, each duct coursing along the inner surface of the corresponding lobe. They do not penetrate the capsules of the lobes, but pass forwards in the interlobular tissue to open into the urethra.

The prostate, thus constituted and enveloped by its *true capsule*, is further encased in a second capsule or *sheath*, formed mainly by the recto-vesical fascia, numerous connecting bands, however, passing between the two. The nomenclature here adopted is that suggested by the late Sir Henry Thompson in his work, 'The Diseases of the Prostate,' and is both scientific and practical. Embedded in the outer capsule, or sheath, lies the prostatic plexus of veins, most marked in front and on the sides of the prostate. This diagram (Fig. 11) shows the structure of the prostate and surrounding parts.

There is nothing that I can call to mind that illustrates more simply and forcibly the composition of the prostate and its coverings than an orange. If we imagine the edible portion of an orange composed of two segments only instead of several, with the septum between them placed vertically, we have a rough and homely illustration of the formation of the prostate. The strong fibrous tissue which covers the

segments of the orange, and which is intimately connected with the pulp, represents the *true capsule* of the prostate, the two segments or halves of the orange being represented by the two lobes. Further, the rind of the orange outside all represents the outer capsule or prostatic sheath formed by the recto-vesical fascia.

And here let me remark that in the operation that I shall presently set forth, it is this inner or true capsule as above

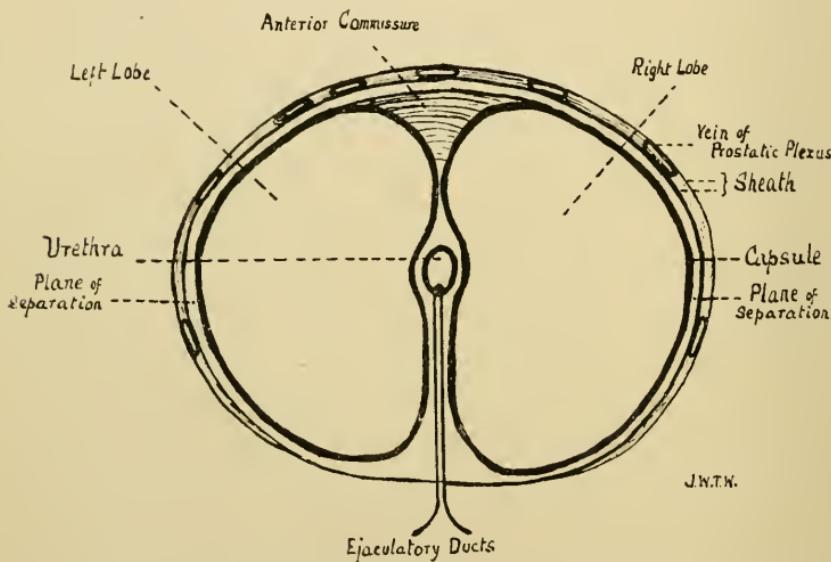


FIG. 11.—DIAGRAMMATIC VIEW OF CORONAL SECTION OF PROSTATE AND SURROUNDING SHEATH.

described that is removed, the outer capsule or sheath being left behind, thus preventing infiltration of urine into the cellular tissues of the pelvis. The text-books, as a rule, draw no distinction between the two separate coverings of the prostate, treating them both combined, or the outer one only, as 'the capsule.' To persons brought up in this school of thought and teaching my operation must at first sight necessarily have appeared impossible.

In most, if not in all, cases of enlargement of the prostate

of declining life (cancer being excluded) the overgrowth is adenomatous in character, numerous encapsulated adenomatous tumours being found embedded within the substance of the lobes, and frequently protruding on their surfaces. They sometimes assume the form of polypoid outgrowths (Fig. 1),

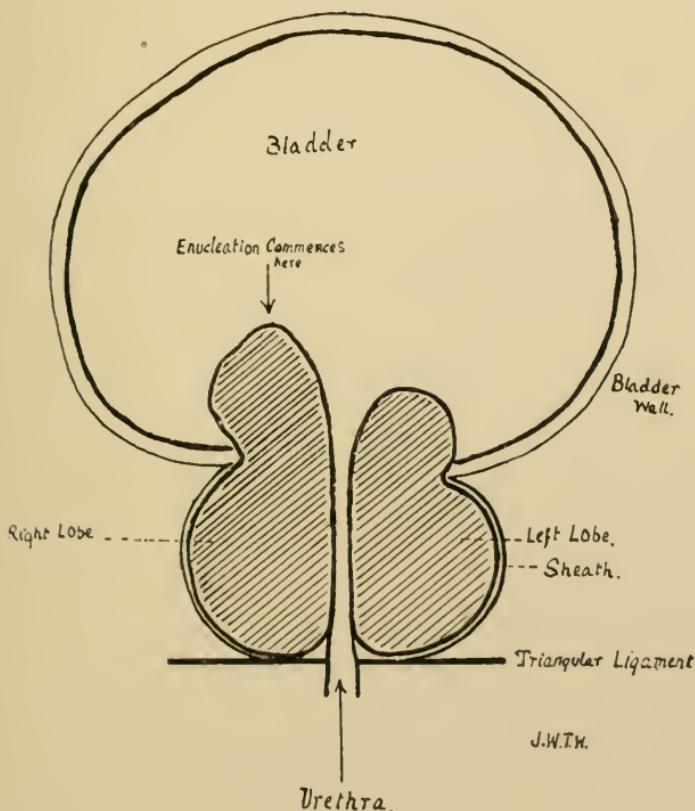


FIG. 12.—DIAGRAMMATIC VIEW OF HORIZONTAL SECTION OF ENLARGED PROSTATE AND BLADDER.

which, however, are invariably enclosed within the *true capsule*, which is pushed before them.

As the lobes enlarge they bulge out and have a tendency, each enclosed within its own capsule, to become more defined and isolated, thus recalling their separate existence in early foetal life. They become more loosely attached along their

commissures (particularly the anterior one), which in the normal prostate unite them in front of, and behind, the urethra. And in the course of this change the urethra, with its accompanying structures, is loosened from its close attachment to the inner surfaces of the lobes, particularly in front of the verumontanum, thus facilitating its being detached and left behind in the removal of the prostate, as will presently appear.

In the earlier stages of the adenomatous overgrowth the enlargement is probably entirely extravesical. Its expansion in this position is, however, limited, particularly by the triangular ligament below. As the enlargement progresses it advances in the direction of least resistance—namely, upwards into the bladder. The sheath at the superior aspect of the prostate is incomplete around the urethra. As the enlargement proceeds the prostate gradually insinuates itself through this opening in the sheath into the bladder (Fig. 12), and the inner layer of the muscle of the bladder becoming thinner and thinner from gradual pressure of the outgrowth the prostate in this direction is eventually merely covered by mucous membrane.

In most of the specimens of enlarged prostate removed by me in this operation a well-defined circular groove is noticeable at the junction of the intra- and extra-vesical portions. This is caused by the constriction of the growth by the sharply-defined edges of the sheath, which become sickle-shaped on either side as the prostate shoulders its way into the bladder, and by the sphincter muscle. The shape of the outgrowth of the prostate in the bladder appears to be mainly influenced by the conformation of the sheath superiorly, and, as pointed out by Mr. Thomson Walker, by the two strong, muscular bands found in the inner layer of the bladder muscle, which are continued downwards from the ureters, and, converging, pass into the floor of the urethra. Sometimes this outgrowth

assumes the form commonly known as a 'middle' lobe, which, as can be seen from the specimens, is not a middle lobe at all—there being no such structure in the normal prostate, as pointed out by Sir Henry Thompson more than forty years ago—but an outgrowth from one, or both, of the lateral lobes. More frequently, however, there is a protrusion of each lateral lobe into the bladder, and this may advance to such an extent that one half, or even more, of the enlarged prostate may lie in this viscus.

These, briefly, are the anatomical and pathological considerations on which my operation is based—a comprehension of which is necessary in order to follow me in my description of the details of the procedure. They are fully described in a very able paper recently communicated to the Royal Medical and Chirurgical Society by Mr. J. W. Thomson Walker.*

My ideal operation at the outset consisted in enucleating the enlarged prostate entire in its capsule out of the encasing sheath, leaving the urethra with its accompanying structures behind. But, as will subsequently appear, I discovered at an early stage in the history of the operation that the prostatic urethra might be torn, or even partially or entirely removed, with equally good eventual results.

The Operation.

Before performing the operation the bladder is thoroughly washed out with an antiseptic lotion, as in this disease the urine is almost invariably foul. The catheter employed for this purpose should be made of rather stiff gum-elastic, and be of the largest size that the urethra will readily admit.

Suprapubic cystotomy is now performed. After washing out the bladder the catheter is left *in situ*, and the viscus is distended with boracic lotion. The nozzle of the large

* *British Medical Journal*, July 2, 1904.

syringe employed for this purpose, and which is filled with lotion, is inserted in the end of the catheter, thus acting as a plug to prevent leakage from the bladder, and the syringe being ready to further distend the bladder with fluid, if necessary, as the operation proceeds. An incision, varying in length from $2\frac{1}{2}$ to $3\frac{1}{2}$ inches, according to the stoutness of the patient and the size of the prostate, is made in the median line of the abdomen, its lower end reaching to the level of the pubic arch. This incision is rapidly carried down through, or between, the recti muscles till the prevesical space is opened. Any bleeding vessels having been clamped by catch-forceps, the forefinger is introduced into the lower angle of the wound, and the prevesical fat scraped upwards off the bladder by the finger-nail for the whole length of the wound. The peritoneum, which should not be seen, is thus pushed upwards out of harm's way, and the bladder appears deeply in the wound, quite tense, glistening, and of a pale white colour, with large and tortuous veins coursing in its substance. Selecting an area devoid of veins, the point of the scalpel is plunged boldly into the bladder, and an incision about an inch long made in the vertical direction towards the symphysis. The wound in the bladder can be subsequently enlarged if necessary ; and this is best effected—as being attended by least bleeding—by separating two fingers placed in the wound, and thus tearing the bladder wall to the required extent. On withdrawal of the scalpel the forefinger is introduced into the bladder as the lotion rushes out through the wound, and a general survey of the interior of the viscus is made. Should calculi be present they are at once removed by forceps or scoop.

The forefinger of the other hand is next introduced into the rectum to render the prostate prominent in the bladder, and to keep it steady during the manipulation by the first hand. The mucous membrane over the most prominent

portion of one lateral lobe (Fig. 12), or over the so-called 'middle' lobe, if there be but one prominence, is scored through by the sharpened finger-nail, and gradually detached by it from the prominent portion of the prostate in the bladder.

As I have already explained, this portion of the enlarged prostate is covered merely by mucous membrane, so that when this is scraped through and detached the true capsule of the prostate is at once reached.

Keeping the finger's point in close contact with the capsule, the enucleation of the prostate out of the enveloping sheath outside the bladder is proceeded with by insinuating the finger-tip in succession behind, outside, and in front of one lateral lobe, thus separating the capsule from the sheath. The finger is then swept in a circular fashion from without inwards, in front of and to the inner side of the lobe, detaching this from the urethra, which is felt covering the catheter, and pushed forwards towards the symphysis between the lateral lobes which will, as a rule, have separated along their anterior commissure in the course of the manipulations. The other lobe is attacked and treated in the same manner. The finger is next pushed well downwards behind the prostate and the inferior surface of the gland is peeled off the triangular ligament. When the prostate is felt free within its sheath and separated from the urethra, with the finger in the rectum, aided by that in the bladder, it is pushed into the bladder through the opening in the mucous membrane, which, during the manipulations, will have become considerably enlarged.

The prostate, which now lies free in the bladder, is withdrawn by strong forceps through the suprapubic wound. And here I may remark that it is astonishing through what a comparatively small suprapubic wound a very large prostate can be delivered, owing to the elasticity and compressibility

between the blades of the forceps of the adenomatous growth. Sometimes the lobes become detached along both anterior and posterior commissures and come away separately.

The question now arises, What becomes of the ejaculatory ducts in the course of this operation?

When the lobes come away separately they are probably left behind uninjured, attached to the urethra. When the prostate comes away as a whole, they may be torn across, or pulled out of the gland, a matter of trifling importance at an age when, as a rule, the reproductive powers are lost. But, as will subsequently appear, in the vast majority of my later operations, the distorted portion of the urethra behind the verumontanum has been removed with the prostate, the urethra being severed at the position at which the ejaculatory ducts enter it, the ducts as a rule remaining adherent to the portion of the prostatic urethra that is left behind.

Almost from the commencement I have abandoned the employment of any cutting instrument for incising the mucous membrane, finding the finger-nail alone most convenient and expeditious. Besides, when scissors or scalpel are employed there is danger of entering the capsule, and the guiding-line being thus lost, the finger flounders about inside, enucleating isolated adenomatous tumours instead of the whole organ in its capsule.

There is, as a rule, very little bleeding from the operation. It is astonishing the rapidity with which the cavity left by the removal of the prostate practically disappears, owing to the inherent elasticity of the sheath, the contractility of the surrounding muscles, and the pressure of the pelvic structures generally. The contraction that takes place somewhat resembles that of the womb in parturition, and no doubt has a similar influence in arresting haemorrhage. The contractility of the cavity will be greatly facilitated by

pressing its opposing surfaces together by the points of the fingers in the bladder and rectum respectively. Irrigation of the bladder by hot lotion through the catheter and out by the suprapubic wound will also help to check bleeding and remove clots from the bladder. But I find that if continued for more than a minute or two it increases the bleeding instead of diminishing it.

A stout drainage-tube is introduced into the bladder through the suprapubic wound and retained there by a suture for four or five days; the abdominal wound is brought together by sutures, and the patient's abdomen swathed in absorbent dressings. But the toilet of the wound and the after-treatment are of such importance that a separate lecture will be devoted thereto. So I will conclude by giving details of a few illustrative cases, showing what may be accomplished by this operation. And in the first instance let me introduce the first two patients on whom I performed this operation some five years ago. They have come at my request, so that you may interrogate and examine them yourselves, and bear testimony to the permanence of the cure. They are both, indeed, in excellent health, untroubled by any urinary symptom, and they will tell you that they regained their sexual power after having lost it temporarily before operation, through the pain and debility attendant on the malady.

ILLUSTRATIVE CASES.

CASE 1.—J. T.—, aged seventy-one, admitted to St. Peter's Hospital, November 21, 1900, with prostatic symptoms of several years' standing. Double vasectomy had been performed by me in January, 1900, but with no amelioration of the symptoms. Catheter employed for one year; entirely dependent thereon, nine months; prostate, *per rectum*, much enlarged, bilobed, smooth, soft, movable. Cystoscopic examination on November 28 revealed a bilateral prominence of the prostate in the bladder. Total enucleation of the prostate was performed by me December 1, 1900, in the manner just described, the lobes coming away

separately and the urethra being left behind. Considerable bleeding at first, but this was quickly arrested by irrigation with hot hazeline solution. No vessels were ligatured. On December 13 patient passed 12 ounces of urine *per urethram*, and subsequently none passed by the wound, which had completely healed by December 21. The prostate weighed $2\frac{1}{4}$ ounces. This patient, as you see, now aged seventy-six, five years after operation, is in perfect health, able to pass and retain his urine, which is normal, as well as he ever did.

CASE 2.—Gentleman, aged sixty-seven, consulted me for prostatic symptoms of five years' duration. Catheter employed for three and a half years; entirely dependent thereon, six months. Urine thick with pus and very offensive.

On March 30, 1901, I enucleated the prostate, the lobes, as in the previous case, coming away separately, and the urethra being left behind. Recovery was uninterrupted and complete. Left the surgical home May 2; able to pass and retain his urine normally. He is now, as you see, four years and eight months after operation, in excellent health, and he will tell you that he can retain and pass his urine naturally as well as he ever did. He will further tell you that his sexual power, which was completely lost for two years before operation, was regained, and that he has emissions of semen, showing that the ejaculatory ducts were unharmed in the operation. The prostate weighed $2\frac{3}{4}$ ounces.

CASE 4.—Gentleman, aged sixty-two, sent by Dr. W. Douglas, Newbury. Prostatic symptoms, one year; catheter employed, six months, but patient passed some urine naturally; acute cystitis, with great frequency of micturition—half-hourly by day and night; much pain and frequent stoppage of urine; residual urine, 8 ounces, contained much pus; prostate greatly enlarged *per rectum*, bilobed, soft, movable. Cystoscopic examination revealed bilateral prominence of the prostate in the bladder with a pedunculated outgrowth, which acted as a ball-valve to the urethra.

On June 7, 1901, Mr. H. Frankling assisting, I enucleated the prostate (Fig. 13) entire in its capsule, leaving the urethra behind. Patient passed several ounces of urine *per urethram*, June 12, and on June 16 the wound was closed. Before leaving the surgical home he was seen by Dr. J. Farquharson, M.P., and others, in good health, able to pass and retain his urine normally. I have seen him on several occasions since then in perfect health, and pursuing his ordinary avocation with vigour. On December 31, 1905, four a half years after operation, he writes: 'From the day I left the home up to the present time I have never suffered the slightest pain or inconvenience in any way, and I feel now ten years younger than when I first, so fortunately for me, met you.' The prostate (Fig. 13), which weighed $2\frac{1}{4}$ ounces, presents a well-marked pedunculated outgrowth in the bladder.

CASE 9.—C. B.—, aged fifty-eight, suffering from prostatic symptoms for seven years, complicated by organic stricture of the urethra. Catheter employed five years; entirely dependent thereon for about a month; much pain, difficulty with catheter, and bleeding; urine contained pus; prostate much enlarged. rounded, bilobed, smooth, dense, elastic, movable. Cystoscope revealed bilateral outgrowth in bladder.

On January 15, 1902, at St. Peter's Hospital, I enucleated the prostate entire, the lobes opening along the anterior commissure, and the urethra being left behind; very little bleeding or shock. Some urine

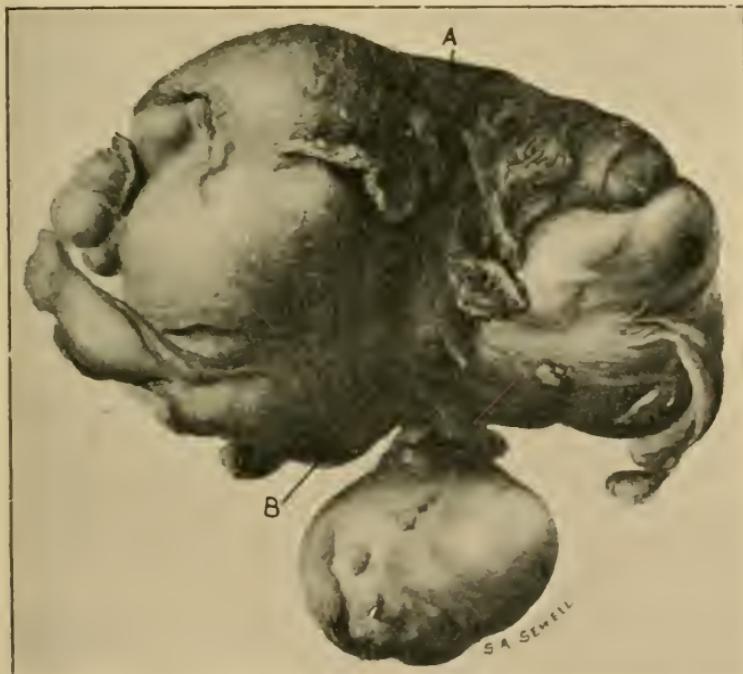


FIG. 13.—PROSTATE, WEIGHING $2\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-TWO (CASE 4). ACTUAL SIZE.

Shows pedunculated outgrowth in bladder. The groove A, B indicates position in which urethra lay.

passed *per urethram* January 21, and wound was firmly closed February 2. On February 7 went home in good health, able to pass and retain urine normally. I had the pleasure of showing this case here at a previous lecture. On December 27, 1905, nearly four years after operation, he writes: 'I am in the best of health and have no urinary troubles whatever. At night I retain the water five or six hours without inconvenience.

In the daytime, of course, the intervals are shorter ; but then it depends on how much I drink.' The prostate (Fig. 14) weighed $2\frac{3}{4}$ ounces.

CASE 12.—A. T.—, aged seventy-six, sent by Dr. J. S. Anderson, Hornsey, April 1, 1902. Prostatic symptoms of fifteen years' duration ; completely dependent on catheter, thirteen years ; much difficulty latterly in passing instrument ; profuse haemorrhage at times ; condition very distressful ; prostate much enlarged *per rectum*, bilobed, smooth, elastic, movable, felt bimanually. General health fair.

On April 10, 1902, I enucleated the prostate entire in its capsule at St. Peter's Hospital. There was an outgrowth of the left lobe in the

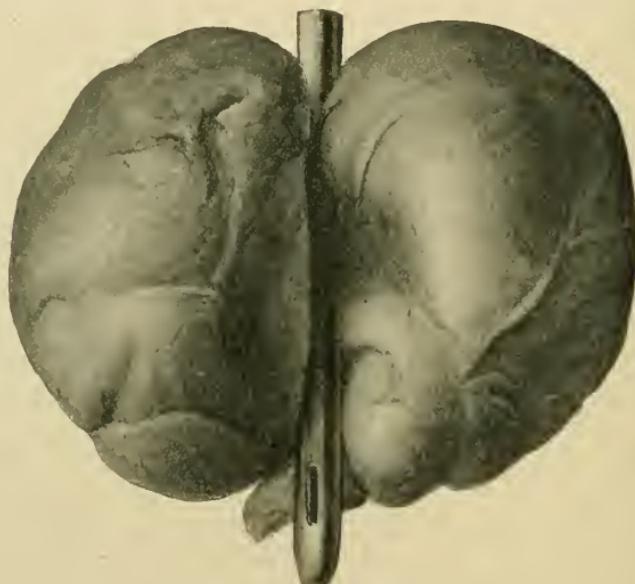


FIG. 14.—PROSTATE, WEIGHING $2\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED FIFTY-EIGHT (CASE 9). ACTUAL SIZE.

Catheter lies in position occupied by urethra.

bladder the size of a walnut. Dr. A. B. Mitchell, of Belfast, who was present, informed me that he had timed the operation ; fifteen minutes elapsed between commencement of the operation and delivery of the prostate from the bladder.

The recovery was uneventful. Some urine passed naturally, April 23 ; wound closed, May 16 ; discharge cured, May 20. I saw him, June 3, in excellent health, with no urinary symptom. Retained urine all night, from 10.30 p.m. till 8 a.m., and passed it 'better than he ever did previously.' On June 4 Dr. Anderson wrote : 'The results of the operation have been most satisfactory. I should never have conceived it

possible for anyone to obtain such complete relief as Mr. T—— has done from an affection that had lasted so long, and was daily becoming more and more dangerous to life.' This patient was present at a previous lecture, and related his terrible sufferings and complete cure. On December 28, 1905, three and three-quarter years after operation, he writes : 'My waterworks are in perfect condition. Complete control, order and peace exist in every department. My appetite is good, and I enjoy

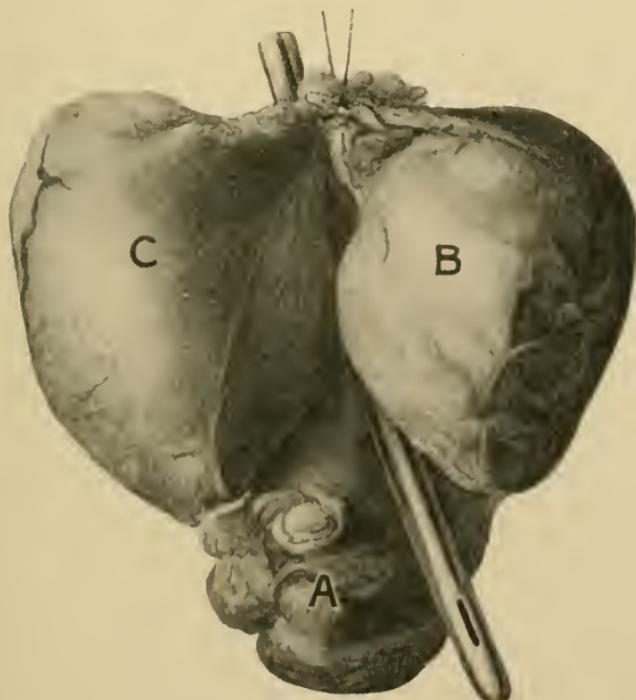


FIG. 15.—PROSTATE, WEIGHING 3½ OUNCES, FROM PATIENT AGED SEVENTY-SIX (CASE 12). EXACT SIZE.

B, C, Lateral lobes ; A, 'middle lobe' growing from C.

my bed with its sweet sleep and cheerful dreams.' The prostate (Fig. 15) weighed 3½ ounces.

CASE 13.—J. H——, aged sixty-eight, admitted to St. Peter's Hospital May, 1902. Has suffered for twelve years from the usual prostatic symptoms, which latterly have grown much worse. Retention of urine two years and a half ago ; since then has used catheter regularly, through which he passes practically the whole of his urine now. His doctor writes that he has had several attacks of cystitis and probably pyelitis, with extreme feebleness, weak, irregular pulse, and extreme pain, 'render-

ing life almost unendurable.' Urine alkaline, specific gravity 1012, albumin, and much muco-pus. Large inguinal hernia complicates the case. Prostate *per rectum* much enlarged, rounded, slightly bilobed, smooth, tense, elastic, and movable. By the cystoscope both lobes were seen prominent in the bladder.

On May 14 I performed suprapubic cystotomy and felt the lobes as seen by the cystoscope. By my finger-nail I scraped through the mucous membrane covering the right lobe till the capsule was reached, and then gradually separated it from the sheath and urethra. The left lobe was

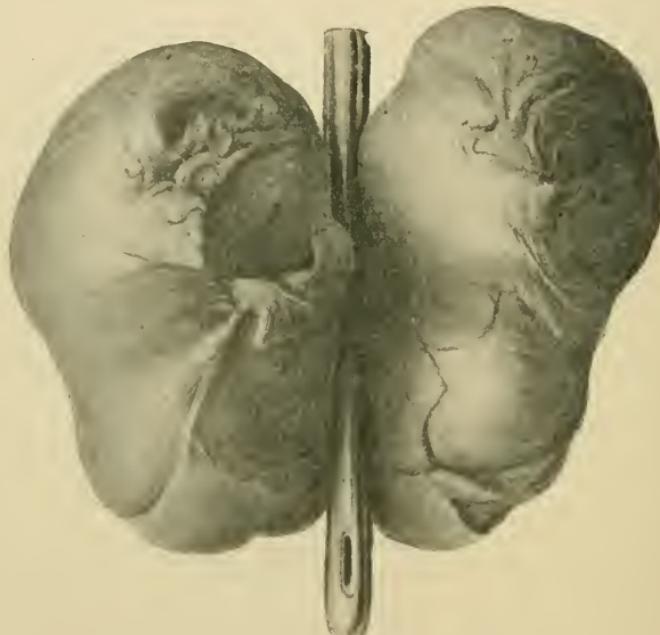


FIG. 16.—PROSTATE, WEIGHING $2\frac{1}{2}$ OUNCES, FROM PATIENT AGED SIXTY-EIGHT (CASE 13). ACTUAL SIZE.

similarly dealt with. The lobes came away separately, leaving the urethra and ejaculatory ducts intact. There was very little bleeding or shock.

Some urine passed naturally May 30; patient sitting up June 5, and passing nearly all his urine by the urethra.

By June 15 his wound was quite healed, and he could pass and retain urine as well as he ever did. On January 3, 1906, his doctor writes: 'When I last saw him he was altered from a decrepit old man, unable to follow his work, to as active and capable a man of his years as one could wish to find.'

Fig. 16 shows the entire prostate, covered by its proper capsule. Lobes placed in proximity along their inferior commissure.

CASE 15.—Distinguished public man, formerly governor of a province in India, aged seventy-nine, seen in consultation with Dr. Scott, Camberley, June 10, 1902. Prostatic symptoms had existed three years; completely dependent on catheter for nine months; catheterism painful and accompanied by haemorrhage at times, also orchitis. Prostate much enlarged *per rectum*,—particularly on the left,—bilobed, rather dense, but movable.

On June, 23, Dr. Scott assisting, I examined the patient cystoscopically,

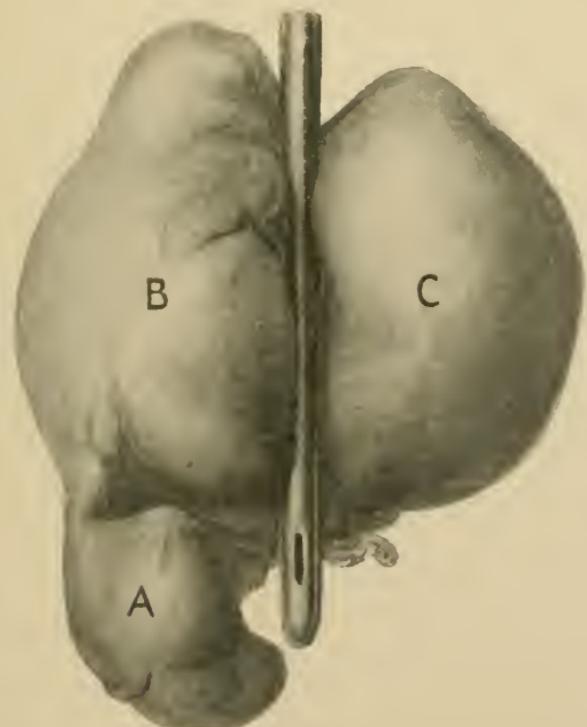


FIG. 17.—PROSTATE, WEIGHING 2 OUNCES, REMOVED FROM PATIENT AGED SEVENTY-NINE (CASE 15). ACTUAL SIZE.

C, Right lobe; B, left lobe, continued into the bladder in the form of a so-called 'middle' lobe, A. The catheter shows the position occupied by the urethra.

and saw a valvular outgrowth from the left lobe, the size of a gooseberry. I forthwith enucleated the prostate, the lobes coming away separately, and the urethra being left behind. Ten minutes elapsed from commencing the suprapubic incision till the prostate was delivered from the bladder.

The patient bore the operation well, but was so sick from the anaesthetic that for three days he had to be fed entirely by the rectum. On June 29,

the temperature rose to 103° F., and the right parotid gland suddenly swelled to a large size, and on July 2 there was swelling of the right testicle. Both glands subsided without suppuration. What the cause of the swelling of the parotid was—whether due to chill, the result of rectal feeding, or occurring, as it occasionally does, after operations on the pelvic viscera and abdomen—I am unable to say. I feared at first that it might be due to septicaemia, but this was obviously not the case. Urine began to pass naturally on July 16, and the abdominal wound was completely closed on the 27th. I saw this patient more than three years after the operation. He was in excellent health, had put on much flesh, and assured me that he passed and retained his urine better than at any period of his life previously to operation.

The prostate (Fig. 17) weighed 2 ounces, with each lobe enveloped in its true capsule. It is adenomatous, but rather hard. It will be observed that the so-called 'middle lobe' (A) is merely an outgrowth from the left lobe (B).

CASE 21.—This gentleman, aged sixty-five, on the advice of Dr. Goldie of Auckland, came to me from New Zealand for the purpose of having his prostate removed. Prostatic symptoms for three years; complete retention of urine eighteen months ago relieved by catheter, which has been employed ever since, practically all the urine passing in this way. Has used narcotics to relieve the pain. Prostate enormously enlarged by rectum, round, smooth, soft, elastic, movable above rectum. Cystoscopy on July 16, 1902, failed owing to bleeding.

On July 23, Mr. W. Braine being anæsthetist, I opened the bladder suprapublically, and enucleated the prostate entire in its capsule, the lobes separating along their anterior commissure, and the urethra being left behind. The whole operation lasted twenty-two minutes, the enucleation of the prostate, and its removal from the bladder occupying only six minutes. There was not much bleeding, but an hour and a half after operation there was great shock and collapse, from which the patient soon rallied. Recovery uninterrupted and rapid. Urine began to pass by the urethra July 31, and the whole of it in this way after August 6, when the suprapubic wound was completely closed. On February 8, 1906, he wrote from Auckland: 'I am in the best of health, and have had no urinary trouble or pain since the operation, three and a half years ago. In fact, I feel as well as I ever did in my life; can hold or pass water at will like a man of twenty-one, although I am in my sixty-ninth year.'

The prostate (Fig. 18) weighs $4\frac{1}{4}$ ounces, is non-symmetrically enlarged, the left lobe being much larger than the right, with a 'middle' lobe behind the urethral orifice, formed by an outgrowth from the left lobe.

CASE 23.—Captain J.—, aged seventy-two, came from Wales to consult me October 24, 1902, on the advice of Dr. A. Rees, of Cardiff, and Dr. Ironside, of Hampstead. Prostatic symptoms for nine years; retention of urine six years ago; much pain and haematuria for four years; catheter regularly employed for three years.

I drew off 6 ounces of turbid urine containing some pus and mucus. Sounded, but no stone found. Prostate enormously enlarged *per rectum*,

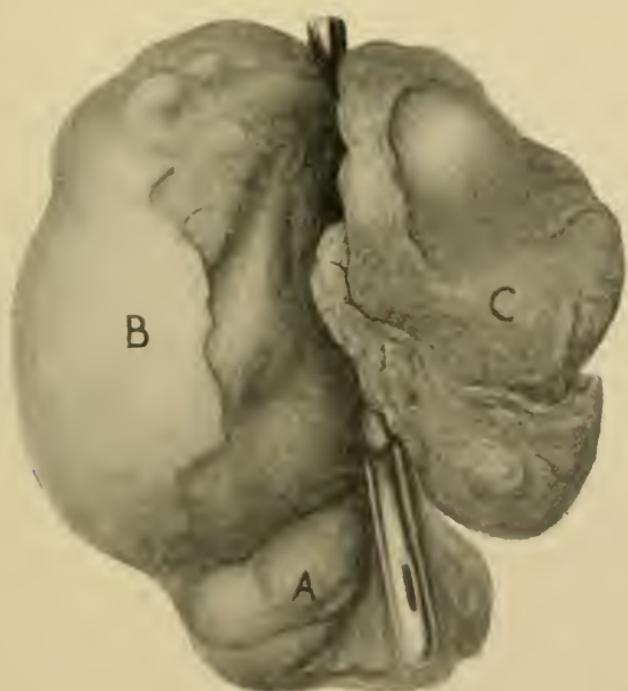


FIG. 18.—PROSTATE, WEIGHING $4\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-FIVE. ACTUAL SIZE.

A, 'Middle' lobe, growing from left lobe, B, which is much more enlarged than right lobe, C.

bilobed, smooth, soft, elastic, movable; suffering from chronic bronchial catarrh. Pulse irregular and bounding; high tension. Patient very stout.

On October 17, Mr. C. Braine giving chloroform, Colonel Lucas, C.B., and Major Freyer, C.M.G., being present, I opened the bladder suprapublically. Prostate found much enlarged into bladder, particularly the left lobe, which projected like the handle of a pistol, forming a so-called 'middle' lobe. The prostate was enucleated easily and rapidly, the

lobes separating along both commissures and coming away separately, leaving the urethra behind uninjured. There was very little bleeding, and the operation was completed in twenty-four minutes.

The recovery was uneventful. Some urine passed naturally on October 20, and the whole of it in this way on and after November 8. On November 27 he went home to Wales in excellent health, untroubled by any urinary symptoms. On December 1 he wrote: 'I am feeling

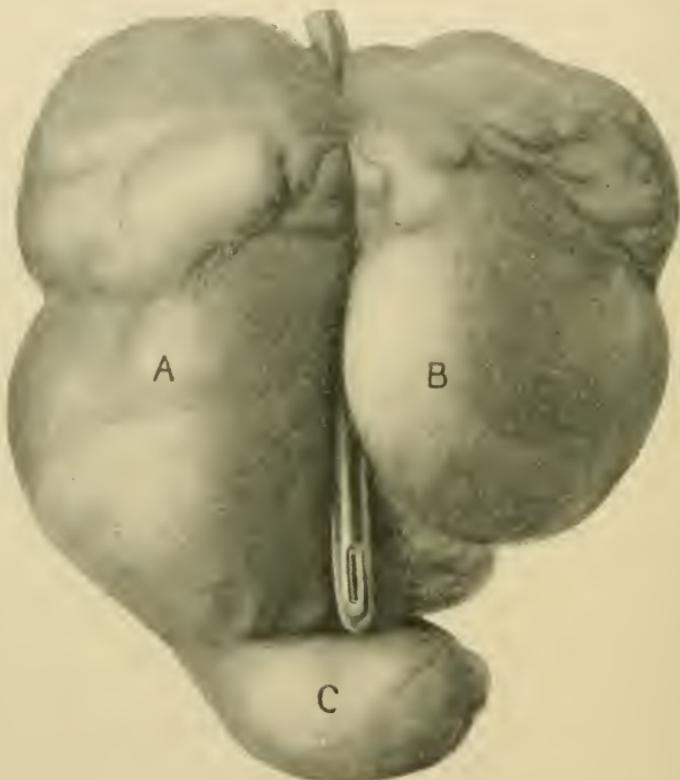


FIG. 19.—PROSTATE, WEIGHING $6\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-TWO (CASE 23). ACTUAL SIZE.

c, Pistol-shaped continuation of left lobe, A, forming so-called 'middle lobe,' which obstructed entrance of catheter; B, right lobe.

splendid. I now make water freely, and have thorough control of it.' On November 27, 1904, he wrote: 'This being the anniversary of my leaving your care two years ago, I cannot let it pass without thanking you for the splendid work you did on me.'

Fig. 19 is the prostate, weighing $6\frac{1}{2}$ ounces. The left lobe (A) was continued into the bladder, forming a projection like the handle of a

pistol—the so-called 'middle' lobe—and obstructed the entrance of the catheter.

CASE 24.—J. H—, aged sixty-six, sent by Dr. William Curtis, Alton, Hants, August 5, 1902. Prostatic symptoms for thirty years. Retention twenty-four years ago; urine drawn off by Dr. Curtis. Since then no urine passed except by catheter. During last two years in great agony from usual symptoms of stone, superadded to those of enlarged prostate. Has had numerous attacks of cystitis with fever. Catheter now required every half to one hour. Inguinal hernia requiring a truss. Patient extremely feeble, anaemic, and much depressed. I drew off 3 ounces of stinking urine containing blood, pus, and mucus. Sounded, and multiple calculi detected. Prostate enormously enlarged *per rectum* bilaterally, soft, elastic, movable, placed high up, so that the finger cannot reach beyond it.

Litholapaxy in September, débris of calculi weighing 180 grains. Thirteen days under treatment, when he left for home to recruit his health preliminary to undergoing operation for removal of prostate.

Returned on November 4. Bladder washed out twice daily to improve its condition. On November 12, 1902, I removed the prostate, both lobes of which were unusually prominent in the bladder. The lobes separated along both commissures and came away separately, leaving the urethra behind. There was considerable haemorrhage and shock, and for several days patient suffered much from nausea. The wound was slow in healing, no urine passing naturally till December 15. On December 28 the suprapubic wound had closed, and on January 6 he went home quite well, passing and retaining his urine naturally. On January 8 Dr. Curtis wrote: 'I am perfectly delighted with the result. It is a triumph of surgery.' On December 27, 1905, more than three years after operation, the patient writes: 'I am thankful to be able to say I have none of my old troubles since the operation. I am in fairly good health, and free from all the old agonizing pain.'

Fig. 20 is the prostate, weighing 6 $\frac{1}{2}$ ounces, the lobes (A, B) being placed in apposition as before removal. On the prominent portions in the bladder (at C, C') are ulcers, no doubt caused by the calculi previously removed by litholapaxy.

CASE 25.—Captain E—, aged sixty-eight years, came from Argyllshire to consult me November 17, 1902, on the advice of Mr. G. Henderson, of Kirn. There had been prostatic symptoms for nine years, and the urine had been drawn off by catheter entirely for six years. During the last three years there had been frequent attacks of cystitis and haemorrhage, blocking the catheter, which had to be passed every hour day and night. The pain had been excruciating, requiring morphine to subdue it, and the urine was thick with pus and mucus. 'Is now in such a state,'

wrote Mr. Henderson, 'that he would submit to anything rather than go on suffering as at present.' I drew off a couple of ounces of urine thick with pus, mucus, and blood, and of a fearful stench, and with the soft catheter detected calculi in the bladder. Upon sounding it was found that many calculi were present. The prostate was enormously enlarged

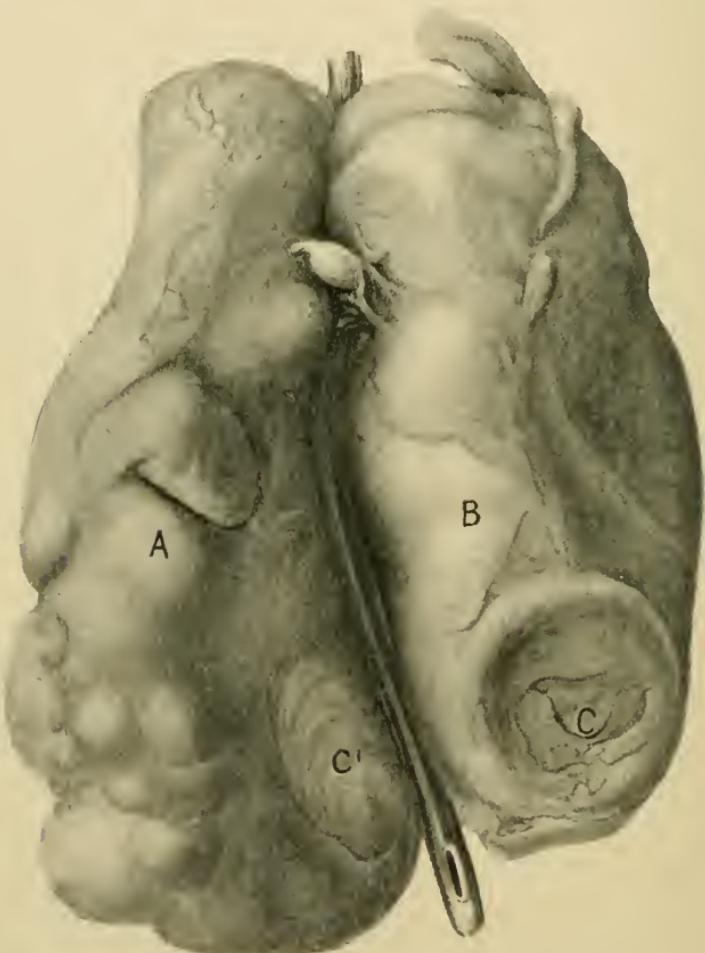


FIG. 20.—PROSTATE, WEIGHING $6\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-SIX (CASE 24).

A, B, Lateral lobes ; C, C', ulcers on prominent portions in bladder caused by calculi.

per rectum, bilobed, rather hard, nodulated, but movable. The patient was emaciated, but wiry.

On November 29, assisted by Mr. D. S. Wylie, Major S. F. Freyer

and Major C. W. Johnson being present, I opened the bladder suprapublically and found it full of calculi, varying in size from a hazel-nut downwards, each faceted and all composed of phosphates. These I

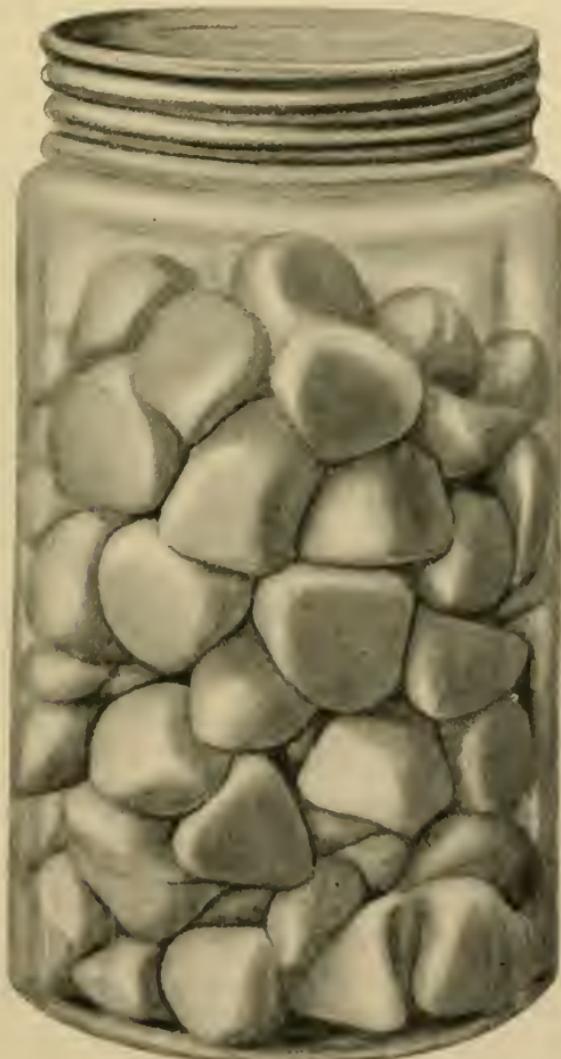


FIG. 21.—JAR CONTAINING NINETY-SIX ENTIRE CALCULI AND DÉBRIS OF OTHERS, WEIGHING $5\frac{3}{4}$ OUNCES, REMOVED FROM THE BLADDER OF CASE 25.

extracted by forceps and scoop, the process being a lengthy one, occupying thirty-five minutes. There were ninety-six calculi counted, besides the débris of many more, weighing $5\frac{3}{4}$ ounces (Fig. 21). The

prostate was then enucleated as a whole in its capsule, the lateral lobes separating along their anterior commissure, and the urethra being left behind. The prostate was so large that it had to be divided into its two lobes by the finger to facilitate its removal. The enucleation and removal occupied five minutes. Though there was free bleeding during the removal of the calculi, there was practically none during the removal of the prostate. Convalescence was established without any rise of tem-

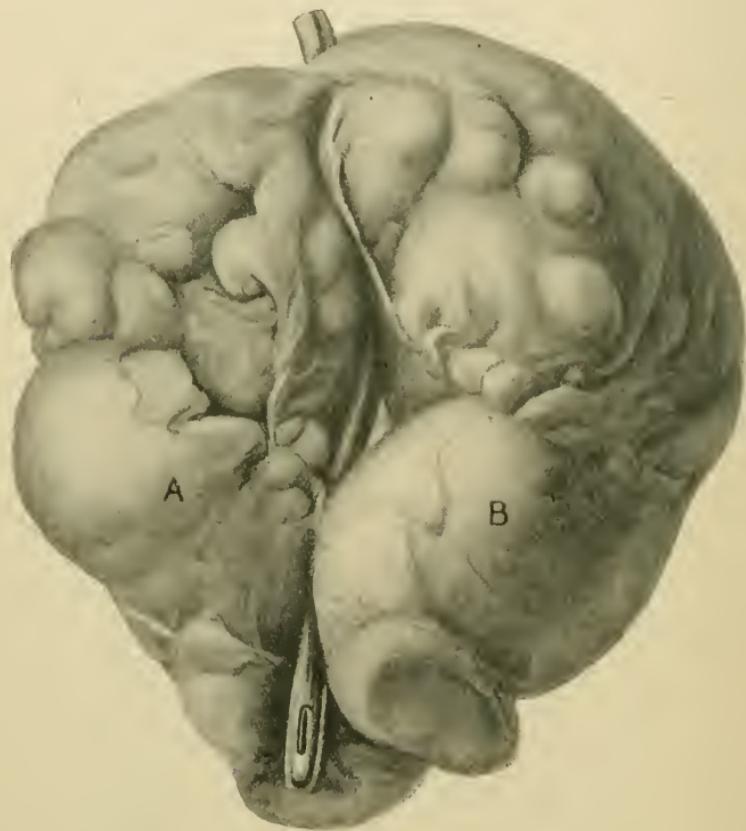


FIG. 22.—PROSTATE, WEIGHING $6\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-EIGHT (CASE 25). ACTUAL SIZE.

B, Right lobe; A, left lobe. The vesical end of B shows an ulcer caused by the calculi. The catheter shows the tortuous course of the urethra.

perature or other unfavourable symptom. Some urine passed naturally on December 6, and the whole of it thus on and after December 12. On December 30 the patient travelled home to Argyllshire in perfect health, having put on much flesh, and being able to pass and retain his urine

naturally. On July 2, 1904, he wrote: 'I am glad to say that I am at—50 pounds heavier than when you first saw me, November 15, 1902. My everlasting gratitude to you.' And on February 22, 1906: 'The urinary organs are in excellent condition. I sleep six and seven hours on a stretch without inconvenience. Since the day you relieved me I have never had an ache or pain of any sort whatever.'

The prostate (Fig. 22) weighs $6\frac{1}{2}$ ounces. The catheter shows the

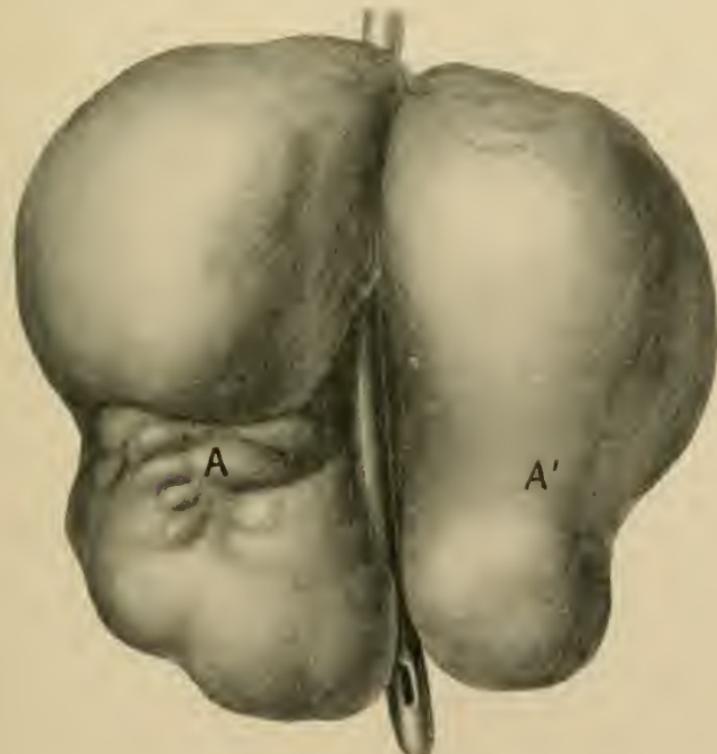


FIG. 23.—PROSTATE, WEIGHING $5\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-ONE (CASE 37).

The constriction at A, A' is the boundary between the intravesical and extravesical portions of the gland.

tortuous shape of the urethra. The end of the right lobe (B) projecting into the bladder is ulcerated, the result of the calculi.

CASE 37.—Gentleman, aged seventy-one, consulted me March 16, 1903, on the advice of Dr. J. F. Tuohy, of Hove. Five years previously had haematuria for two days after a game of tennis. Consulted two London surgeons, one of whom sounded him and washed out his bladder in a home for several days. Scalding and increased frequency of

micturition ever since. Three weeks previously haemorrhage set in again, when he saw Dr. Tuohy, who found he had a large quantity of residual urine, the result of a very much enlarged prostate, and advised him to have the prostate removed. Catheter employed twice daily. I drew off 8 ounces of residual urine, which was turbid from muco-pus. Prostate greatly enlarged *per rectum*, markedly bilobed, soft, tense, smooth, movable ; felt bimanually like a large orange.

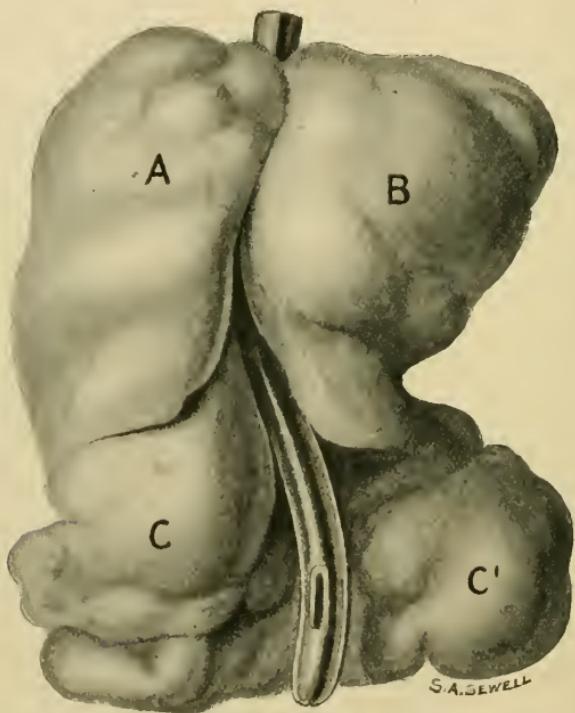


FIG. 24.—PROSTATE, WEIGHING $3\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-THREE (CASE 136).

B, Right lobe ; A, left lobe, terminating in fan-shaped outgrowth, c, c'.

On March 18, Dr. Tuohy assisting, I removed the prostate entire in its capsule, the urethra being left behind. Both lobes were very prominent in the bladder—almost pedunculated outgrowths. The enucleation was easy and rapid, only ten minutes elapsing from commencing the supra-pubic incision till the prostate was delivered from the bladder. Scarcely any bleeding or shock. The patient made an uninterrupted recovery, the temperature remaining practically normal throughout. Urine began to pass naturally April 14, and the wound was quite closed April 19. Went home to Brighton April 23 in good health, able to retain and pass

his urine as well as he ever did. I have met this gentleman frequently since then in perfect health. On December 29, 1905, more than two years and nine months after operation, he writes: 'I could not have been doing better. The operation was a complete success.'

The prostate (Fig. 23) is a fine specimen of the symmetrically enlarged type, weighing $5\frac{1}{2}$ ounces.

CASE 136.—Member of the medical profession, aged seventy-three, consulted me October 4, 1904. Symptoms of enlarged prostate seven years; entirely dependent on catheter five years. Urine clear, acid, specific gravity 1020, trace of albumin. Prostate greatly enlarged, bilobed, soft, movable, felt very prominent in bladder bimanually. Mitral disease of heart, with loud bruit. Seen by Sir Thomas Barlow and Dr. de Haviland Hall, both of whom considered that the state of the heart did not contraindicate the employment of an anæsthetic, provided he had a week's rest in bed with careful dieting.

On October 25, Dr. Hewett being anæsthetist and Mr. H. W. Carson being present, I enucleated the prostate (weighing $3\frac{1}{4}$ ounces), the lobes of which were very prominent in the bladder, particularly the left (Fig. 24, A), which spread out in the form of a fan (c, c'). In the enucleation a small portion of the left lobe was broken off owing to inflammatory adhesions to the bladder, and was removed separately. Time, six minutes; scarcely any bleeding and no shock—in fact, the pulse was better after the operation than before.

Recovered without any unfavourable symptom. Urine passed naturally November 9; wound dry November 14. Left the surgical home quite well November 26; able to retain and pass urine as well as ever. He is now in active pursuit of his profession. On October 29, 1905, a year after operation, he writes: 'So far as urinary troubles are concerned, I have kept perfectly right since leaving the home. Micturition is more free than it has been probably since childhood.'

LECTURE IV

I.—DEVELOPMENTS OF THE AUTHOR'S OPERATION INVOLVING PARTIAL OR TOTAL REMOVAL OF THE PROSTATIC URETHRA

WHEN I first conceived the possibility of removing the whole prostate, my ideal operation consisted, as already stated, in enucleating the enlarged gland entire in its capsule out of the enveloping sheath, leaving the urethra behind; and this was the procedure undertaken in my earlier cases. An accident which occurred during the operation on my eighth case had, however, the effect of materially modifying my views in this respect. In a lecture delivered on January 15, 1902, on my second series of four cases of the operation, and published in the *British Medical Journal* of February 1 of the same year, I introduced the description of this case in the following words: 'I now pass on to the eighth case, which presents some peculiarities, not the least interesting being that, though in the removal of the prostate as a whole the urethra was undesignedly torn across at its junction with the bladder, no untoward result ensued, the patient making a thorough recovery.' The details of the case are these:

CASE 8.—This patient, aged sixty-five years, had a history of prostatic symptoms for ten years, much aggravated during the last two and a half years, particularly as the introduction of the catheter caused haemorrhage. The prostate was felt to be greatly enlarged *per rectum*, tense, elastic, smooth, globular, and quite movable. Cystoscopic examination revealed an irregular bulging into the bladder all round its neck.

On December 11, 1901, I operated. After enucleating the prostate in its capsule from the sheath all round, I felt the catheter passing through its axis (the urethra), and that the lobes had not separated either along the anterior or posterior commissure. Passing my finger along the anterior commissure, counter-pressure being made by the finger in the rectum, I endeavoured to separate the lobes, when suddenly the whole mass was propelled into the bladder. The urethra was then felt covering

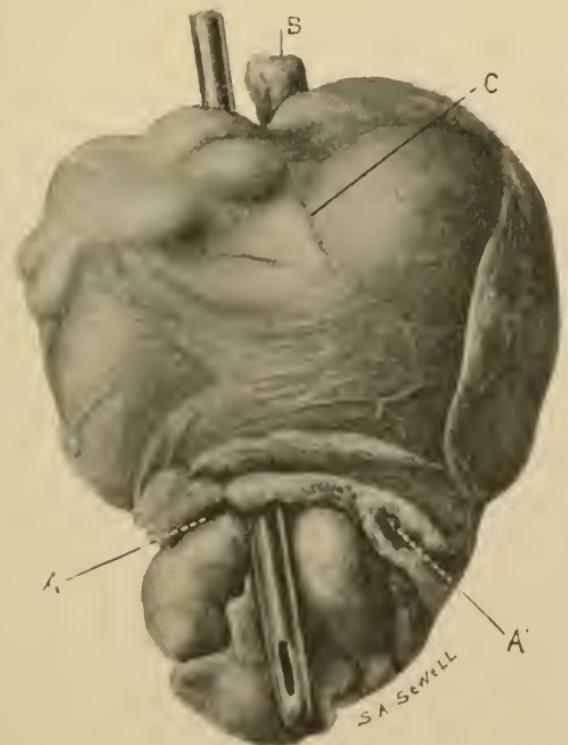


FIG. 25.—PEAR-SHAPED PROSTATE, WEIGHING 3 OUNCES, REMOVED FROM PATIENT AGED SIXTY-FIVE (CASE 8).

the catheter, but severed at its vesical end. On examination of the prostate after removal I found that it was pear-shaped, and that it had been drawn from the urethra, which was severed at the neck of the bladder, just as a bead is drawn from a string. There were more haemorrhage and shock than in the previous cases, but the patient made a thorough recovery. Nine months after the operation I had the pleasure of showing this patient at the East Anglian branch of the British Medical Association. He was in perfect health, able to pass and to retain his

urine as well as he ever did. On December 30, 1905, four years after operation, he writes : 'I can both pass and retain urine quite comfortably and satisfactorily, thanks to your wonderful operation. Indeed, I have no pains now, and life has become worth living ; but, as you know, without your operation I could not have lived a fortnight.'

In a further lecture published in the *British Medical Journal* of July 26, 1902, I commented on this and cases of a somewhat similar nature in the following terms :

'In my previous lecture, in giving details of my eighth case of this operation, I described how, whilst endeavouring to separate the prostatic lobes along their anterior commissure so as to leave the urethra behind intact, the urethra was undesignedly torn across, and the prostate propelled as a whole into the bladder by the force of the finger in the rectum. This patient made an excellent recovery, and is now in good health, untroubled by any urinary symptom. The success that attended this case emboldened me to deliberately tear the urethra across in Cases 10, 11, and 14, and to remove a portion or the whole of the prostatic urethra, when it was found that the enlargement had not sufficiently advanced to define and loosen the lobes along either the anterior or posterior commissure, so as to enable one to peel the prostate off the urethra and leave the latter behind intact, with the successful results already described. The success that has attended these latter cases is of weighty import, indicating, as it does, that we may remove the prostate at an earlier stage in its growth, and that when it is found impossible to separate it from the urethra, we may, without hesitation, boldly tear across or even remove the latter with impunity.'

The details of Case 10 are as follows :

CASE 10.—C. C—, aged fifty-nine, suffered from the usual prostatic symptoms for twelve years ; of great severity latterly, haemorrhage accompanying the use of the catheter. Prostate much enlarged *per rectum*, rounded, scarcely bilobed, placed high in rectum. Cystoscopy

at St. Peter's Hospital on June 6, 1901, showed both lobes prominent in the bladder, and two small, oval, smooth, fawn-coloured calculi lying behind the prostate. Litholapaxy was at once performed, the uric acid débris weighing 42 grains. Recovery uneventful.

The prostatic symptoms continuing to increase in severity, on the advice of Dr. Collins, Peterborough, the patient returned in January, 1902; and on February 5 I removed the prostate (Fig. 26), weighing $2\frac{3}{4}$ ounces, as a whole, with the urethra attached. The patient was very ill for some days, with distended abdomen, pain and tenderness in the left loin and groin, causing much anxiety. These symptoms however

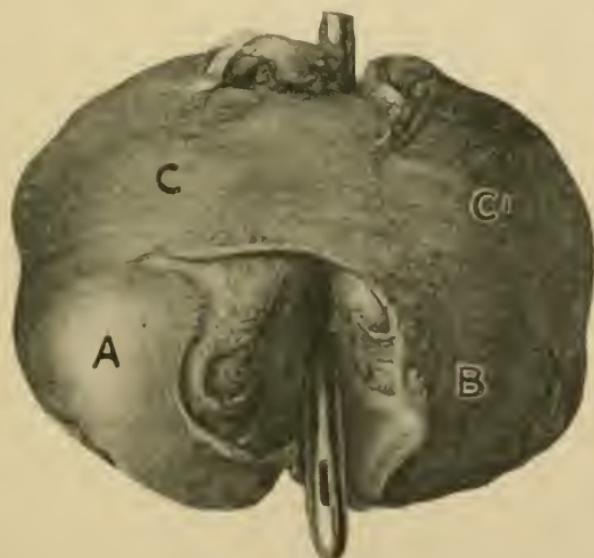


FIG. 26.—PROSTATE, WEIGHING $2\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED FIFTY-NINE (CASE 10).

A, B, Lateral lobes; C, C', muscular and fibrous band from sheath outside prostate.

subsided, and on February 17 some urine passed *per urethram*, but the suprapubic wound was not entirely closed till March 15. On March 24 he left for home quite well, passing and retaining his urine normally. On January 7, 1906, nearly four years after operation, he wrote: 'I am keeping in good health and have not lost a day's work for over nineteen months. I have had no urinary troubles since I saw you.' On February 13, 1906, he came to see me at the hospital in perfect health, able to pass and retain his urine, which was normal, as well as he ever did.

In my fourth, fifth, and sixth series of cases of the operation, published respectively in the issues of the *British Medical Journal* of November 8, 1902, April 18 and July 4, 1903, several instances are recorded of removal of the prostatic urethra with the entire gland. I will give an example from each series:

CASE 16.—General B—, aged sixty-seven, sent by Mr. Jowers, of Brighton, June 20, 1902. Prostatic symptoms for five years; latterly

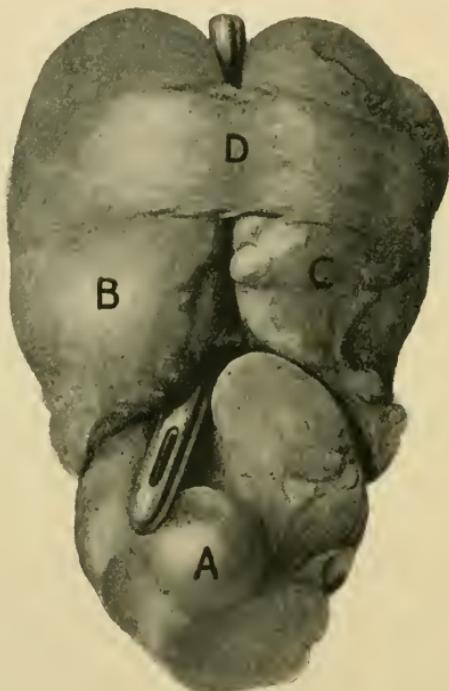


FIG. 27.—PROSTATE, WEIGHING $2\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-SEVEN (CASE 16). ACTUAL SIZE.

A, Tongue-shaped 'middle' lobe growing from lateral lobes, B, C, but mainly from left; B, D, band of sheath encircling lateral lobes.

combined with those of stone in the bladder. Great frequency of micturition by day and night, with intense pain; passing blood in urine for years. The passage of the catheter, which is employed three or four times daily, causes intense pain. Patient in a very miserable condition, utterly unnerved from the pain and want of sleep; constantly using narcotics; wears a urinal in bed.

Prostate much enlarged *per rectum*, bilobed, smooth, soft, tense movable ; urine alkaline, contains much pus and blood. Sounded, but no stone detected. Cystoscopy on June 23—Dr. Dudley Buxton, anesthetist : Dr. J. Anderson, C.I.E., and Colonel Coates, I.M.S., present—revealed a large tongue-shaped outgrowth of the prostate in the bladder, and below this calculi lying like eggs in a nest.

I forthwith opened the bladder suprapubically and removed four smooth urate calculi, weighing over 2 drachms, from a pouch behind the prostate. I then enucleated the prostate (Fig. 27), weighing 2½ ounces, as a whole. The latter failed to separate along its anterior commissure, so I tore the urethra across at the neck of the bladder, and peeled the prostate off the urethra. There was very little bleeding and no shock. During the first week the patient made excellent progress, being able from the first to move about in bed. Then some mental disturbance set in, which, however, passed off in a few days. Urine passed naturally July 10, and wound was completely closed July 25. I have met this patient frequently since then. He is now in excellent health, untroubled by any urinary symptoms.

CASE 28.—On November 16, 1902, I was summoned to Stockport to see a patient in consultation with Dr. Hyde Marriott, of that place, and Mr. F. A. Southam, of Manchester. Prostatic symptoms had been present for seven years, the catheter having been used from two to four times daily for five years ; latterly, this was attended by much difficulty of introduction and haemorrhage. The patient had suffered from retention of urine in Brussels in the previous summer, when 26 ounces were drawn off by a Belgian surgeon. Subsequently profuse haemorrhage had occurred, necessitating the tying in of a catheter for four days, when the patient's life was despaired of. Latterly the bleeding had increased in frequency, and when I saw him in consultation he was confined to bed from weakness caused thereby. I passed a coudée No. 8, and drew off eight ounces of blood-stained urine containing pus and mucus. The prostate was felt to be greatly enlarged *per rectum*, bilobed, smooth, tense, soft, and movable. In consultation it was decided that the case was one suitable for removal of the prostate, the only drawback being that the patient was very stout.

On December 4 he was sufficiently strong to travel to London, and on December 8 I removed the prostate, Major Freyer and Dr. Marriott assisting. The prostate came away entire, together with a thin layer of the recto-vesical fascia, or sheath, which was adherent from old-standing inflammation. The prostatic urethra was also removed. Nine minutes elapsed from the time of taking the knife in hand to open the bladder suprapubically to that of the prostate being delivered from the bladder. Some urine passed *per urethram* on December 20, and was wholly passed by this channel on December 24, after which the suprapubic wound did

not reopen, and convalescence was established without rise of temperature. The only interruption to the progress of the case was an attack of biliary colic with jaundice, for which the patient was seen by Sir Thomas Barlow with me; this gradually subsided. After January 3, 1903, the patient walked out daily, and on the 8th he went home to

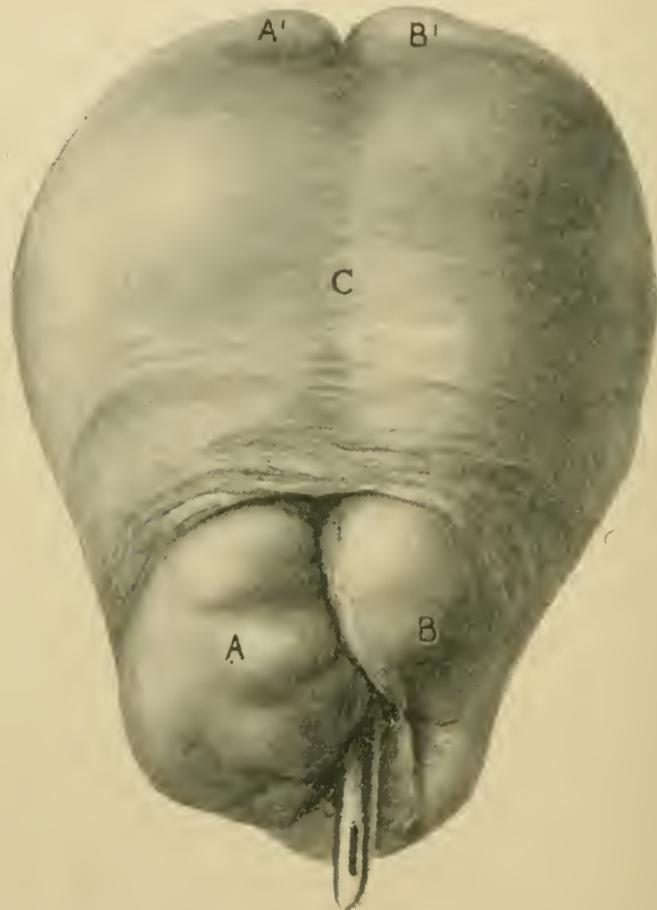


FIG. 28.—PROSTATE, WEIGHING $5\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-THREE (CASE 28). ACTUAL SIZE.

A, A', B, B', Lateral lobes covered by the true capsule and encircled by thin band, C, of the sheath, removed with the prostate.

Stockport, able to pass and to retain his urine naturally. I have seen this patient on several occasions since then. He is in perfect health, untroubled by any urinary symptoms, and is actively engaged in his business. On February 24, 1906, he wrote: 'I never felt better. I have

never felt ache or pain since the operation, or any ill-effects. I retain my water as well as ever I did, and have no trouble. I never passed it better in my life. I call it a complete renewal of life, and making one's latter days a very great pleasure. I stick to business, a good full ten hours a day, and enjoy it.² The prostate (Fig. 28) weighs $5\frac{1}{4}$ ounces.

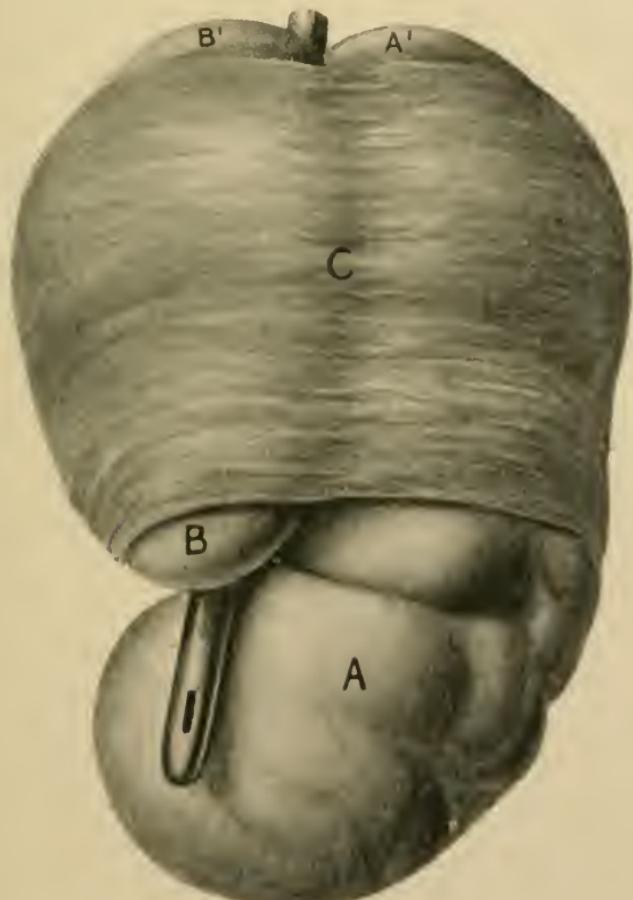


FIG. 29.—PROSTATE, WEIGHING $6\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED FIFTY-SEVEN (CASE 38). ACTUAL SIZE.

A, A', Enormously enlarged right lobe terminating in pistol-shaped projection, A, in the bladder; B, B', left lobe; C, thin band of sheath removed with the prostate.

CASE 38.—The patient, who was fifty-seven years of age, was admitted to St. Peter's Hospital March 10, 1903. He had had retention of urine six years previously, and the usual prostatic symptoms since then

gradually increasing. The catheter had been in habitual use for two years, and the urine had been entirely passed in this way for twelve months. There had been difficulty in passing the catheter. The prostate was much enlarged *per rectum*, bilobed, soft, tense, movable, and felt greatly enlarged bimanually.

On March 18 I removed the prostate (Fig. 29) entire. The capsule was adherent to the sheath, and in the enucleation a thin band of the latter (c) was removed with the prostate as well as a portion of the prostatic urethra. The patient made an excellent recovery ; he began to pass urine naturally on the 30th, and the wound was dry on April 6. He was discharged on the 18th. I had the pleasure of showing the patient at the Medical Graduates' College in May, 1903, in perfect health, and able to pass and to retain his urine quite naturally. On July 1, 1904, he writes : 'I am glad to say that I have no urinary trouble, and that the operation was most successful, and my health has been good.' And on February 26, 1906 : 'I am very well. The waterworks are in good going condition. I have not had any trouble with them since the operation.'

The prostate (Fig. 29), which weighs $6\frac{1}{2}$ ounces, is a fine specimen of the non-symmetrically enlarged organ, the right lobe (A, A') being enormously enlarged in the bladder, and forming a pistol-shaped valve (A) to the urethral orifice. The great size of the prostate is remarkable in a man of the age of the patient.

I have described the evolution of my views and procedure in this matter of the removal of the urethra with the prostate as a whole historically, because I have observed that in the *Annals of Surgery*, for January, 1904, Mr. Moynihan of Leeds, without any recognition of my previously published writings on the subject, implies originality on his part for this procedure. In the paper referred to, this gentleman has assumed the rôle of critic of my work, and was therefore, it is to be presumed, acquainted with my published writings on the subject—a fact which renders his conduct in this matter all the more extraordinary. It is, indeed, a remarkable coincident that even the phraseology employed by him in describing his imaginary discovery should happen to be practically the same in some instances as that employed by me in the above quotations from lectures published in the *British Medical Journal* about two and one and a half years previously.

I have latterly almost completely abandoned the attempt to preserve the urethra entire in the enucleation of the prostate. The excellent permanent results obtained from partial removal of the urethra with the organ have convinced me that no advantage is to be gained by leaving the vesical end of the urethra behind. In a large proportion of cases of enlarged prostate this vesical end of the urethra is extremely dilated, being trumpet-shaped, or distorted out of any shape resembling a more or less circular tube as in the normal prostatic urethra. Even when it was left behind, I have always had my doubts as to its ultimate fate in most instances. The probability is that, through want of support and adequate blood-supply, it sloughed in large part, and came away in the washings during the after-treatment.

Examination of specimens of prostate which, in removal, have opened along the anterior commissure—to which category the great majority belong—will show that the dilated portion of the prostatic urethra—viz., that portion lying between the verumontanum and the vesical outlet, has come away with the prostate, the urethra in front of this being left behind. The portion of the urethra behind the point at which the ejaculatory ducts enter it is much more adherent to the prostate than that in front of it, between this point and the triangular ligament. In fact, in the greatly enlarged prostate this latter portion lies quite loosely attached to the lobes on either side. When such a prostate is enucleated in its capsule from the sheath all round, and the lobes are gently separated from the triangular ligament by the point of the finger, the organ can be felt hanging on by the urethra and ejaculatory ducts; and the finger-point can be easily inserted on either side between the inferior portion of the prostatic lobe and the urethra. If now the finger-tip be placed behind the prostate in the median line above the ejaculatory ducts, and the prostate be propelled upwards

into the bladder by the finger in the rectum, the urethra will be found to snap across at the verumontanum, leaving the ejaculatory ducts, as a rule, adherent to the portion of the prostatic urethra left behind.

II.—THE AFTER-TREATMENT OF PROSTATECTOMY.

With the delivery of the prostate from the bladder the essential part of the operation may be regarded as completed.

The forefinger of one hand is reintroduced into the bladder forthwith, and that of the other hand into the rectum. The opposing surfaces of the cavity, from which the prostate has been enucleated, are then pressed together all round the vesical orifice between the tips of the fingers. By thoroughly kneading the opposed surfaces together in this manner the contraction of the cavity, and its diminution in size, are facilitated, and haemorrhage is thus arrested, just as a dentist presses the gum together after the extraction of a tooth, or the accoucheur does the flaccid womb after parturition, with a similar object in view.

The bladder is then irrigated with hot boracic lotion (temperature about 110° F.), through the catheter still *in situ*, for the purpose of removing clots and, further, to control bleeding. This process should not, however, be continued for more than two or three minutes, as I find from experience that these irrigations not unfrequently promote bleeding instead of diminishing it, if the irrigation be continued too long. This I attribute to the prostatic cavity being distended by the pressure of the fluid in the bladder.

The bladder having been cleared of clots, and whilst the irrigation is still proceeding, a stout indiarubber drainage-tube is introduced through the suprapubic wound. The dimensions and management of this tube I regard as of the utmost importance in the after-treatment of this operation.

I have been gradually increasing the calibre of this tube, till I now invariably employ $\frac{7}{16}$ -inch tubing, with a lumen $\frac{5}{8}$ inch in diameter. Two large perforations, or eyes, are made as near as possible to the vesical end of this tube (Fig. 30), on opposite sides of it. Only about an inch of the tube should project into the bladder, just sufficient for the side openings to lie completely within its cavity. When the bladder is allowed to contract, the tube is gripped by the suprapubic wound therein, so that the whole of the urine escapes through the tube. In this way infection of the loose tissues in the prevesical space is obviated, and cellulitis



FIG. 30.—SUPRAPUBIC DRAINAGE-TUBE. ACTUAL SIZE.

prevented. On no account should the tube be inserted into the prostatic cavity, our object being to facilitate by every means the contraction of this cavity. If more than an inch of the tubing be introduced into the bladder, it will press on its base and give rise to constant straining, and pain in the end of the penis like that caused by vesical stone.

The edges of the parietal wound are now brought together around the tube by silk-worm gut sutures, one or two of which should pass deeply through the recti muscles. On no account should buried sutures be employed, as they are certain to be infected by the urine. One of the sutures should pass through the drainage-tube to keep it securely in position. No sutures are inserted in the bladder.

Before withdrawing the catheter and applying the dressings the bladder is once more irrigated, in order to remove

clots and ascertain that drainage is quite free. Finally a couple of inches of broad iodoform-gauze tape are inserted in one angle of the wound against the side of the tube, and left there for twenty-four hours. This is done for the purpose of preventing the accumulation of fluids in the prevesical space. The wound is now covered with cyanide of zinc gauze and the patient deeply swathed in absorbent dressings—front, sides, and back. The whole dressing is kept in place by a broad flannel binder or many-tailed bandage, loosely applied. Cotton-wool, wood-wool tissue, or cellulose may be employed. The last is most absorbent and keeps the patient driest; but a thin layer of cotton-wool should be placed between it and the skin; otherwise the cellulose, when wet, forms a pulp, which adheres to the skin and feels cold and clammy. The dressings should be changed when saturated with urine, every four or six hours, according to the quantity of fluid secreted. During the first twenty-four hours after operation there will generally be some clots of blood lying in the drainage-tube; these should be removed by long slender forceps at each dressing.

The bladder should be irrigated once daily by the surgeon himself, with warm boracic lotion or a weak solution of permanganate of potash. For this purpose a long glass nozzle attached to the rubber-tubing of an irrigating-can is best, the nozzle being introduced through the drainage-tube. During the first few days there should be very little pressure of fluid on the bladder, the irrigating-can being held, or placed on a table, a little above the level of the patient's abdomen, so that the lotion flows into the bladder and out again through the drainage-tube with very little force. It is all-important that in the early days the drainage should be thoroughly free, and that no pressure should be thrown on the cavity from which the prostate has been removed, either by the accumulation of urine in the bladder or by pressure

from a high column of lotion, so that the cavity may remain at rest, and that blood-clot adherent to its surface may be undisturbed, thus obviating bleeding and facilitating the healing process. This is the main object with which I employ such a stout drainage-tube—that the urine and clots may escape through it freely, and that, consequently, there may be no straining, which would have the effect of dilating the cavity. Patients who pass no urine *per urethram* for ten or twelve days after operation almost invariably do best.

The patient should lie on his back for twenty-four hours, after which he should be placed alternately on either side, and on his back. During the first four or five days he should not be allowed to make any exertion, all movements being effected by nurses. Should there be any oozing of blood after the operation, the foot of the bed should be raised on blocks, and hypodermic injections of ergotin given. I have seen no haemorrhage requiring more active measures in connection with this operation. Shock, when it occurs immediately after operation, should be treated by warmth from hot-water bottles, extra clothing, hypodermic injections of strychnia, and enemata of coffee and brandy. Pain or spasms of the bladder should be relieved by hypodermic injections of morphia. Should there be any bronchial catarrh or other lung-affection, the patient's head and shoulders should be well raised by pillows after the first twenty-four hours succeeding the operation. And in any case this position should be encouraged early, so as to obviate hypostatic congestion of the lungs.

As a rule I remove the tube four days after operation. If the patient be thin the tube may be dispensed with in three days; if he be very stout it should be left in for five days. By this time plastic lymph will have been thrown out round the tube, thus shutting off the prevesical space from contact with

the urine, and in this way avoiding the occurrence of cellulitis: and a free opening will have been established down to the bladder, the wound in which may now be allowed to close as rapidly as nature can accomplish this by granulation. The sutures are removed on the seventh or eighth day, by which time primary union will have taken place in the parietal wound, save, of course, in the track of the tube.

Irrigation of the bladder must be continued daily—twice daily, if the urine be at all foul—by inserting the long glass nozzle of the irrigator through the fistula right down into the viscus. The return stream will in the early days flow out beside the nozzle; but as the fistula contracts the nozzle will fill it; and the irrigation is then accomplished by alternatively filling the bladder with the lotion and then withdrawing the nozzle, when the fluid will rush out with more or less force. As the case advances more and more pressure on the bladder may be employed. The irrigation should be continued till the boracic lotion returns quite clear, or the permanganate lotion unaltered. After nine or ten days from the operation Janet's method of irrigation may be employed, if possible. This consists in introducing the glass nozzle into the urethra and gradually raising the irrigating-can till the column of fluid forces the lotion into the bladder and out through the suprapubic opening. This is, perhaps, the best method of flushing out the bladder; but some patients will not tolerate it, owing to the pain produced. It should never be employed during the first week after operation for fear of causing bleeding; and if it cause pain it should not be employed at all. Patients vary much in their tolerance of this method of irrigation.

After a fortnight or so, when the bladder is distended by lotion through the nozzle placed in the suprapubic opening, the patient will frequently pass the lotion *per urethram* as

rapidly as it enters the bladder. When this takes place, it is an effectual method of flushing out the bladder.

It will be observed that I have not hitherto referred to the employment of the catheter for the purpose of washing out the bladder during the after-treatment. In the early days after the introduction of this operation I was in the habit, as will appear from my previous lectures, of introducing a large-sized gum-elastic catheter through the urethra daily after the third or fourth day from the operation, and irrigating the bladder through this. The catheter was introduced partly in consequence of my apprehension that, if it were not thus employed, there might be contraction of the deep urethra during healing of the prostatic cavity. Experience has, however, taught me that my apprehension in this respect was quite unfounded, for in not a single instance has there been any contraction to interfere with the free flow of urine. I do not now introduce a catheter till the suprapubic fistula has contracted to such narrow dimension that it will not admit the nozzle, so that irrigation cannot be practised in this way. It is employed only during the few days before the patient begins to pass urine *per urethram* in volume, in order to keep the bladder clean during this transition period. When once natural micturition is established, the bladder is, of course, automatically flushed out.

The management of the bowels is of the utmost importance. For three or four days previous to the operation the bowels should be freely moved once daily at least, by means of a laxative pill given at night and a mild saline in the morning. On the morning of the operation the lower bowel should be emptied by means of an enema. The bowels should then be left undisturbed for two or three days, when they should be freely moved by castor-oil or liquorice powder—or any drug which can be depended on to act with certainty and efficiency. After this the bowels should be moved

gently once a day by means of a pill taken at night or a saline in the morning, or both if necessary. Patients of the prostatic age confined to bed are liable to the accumulation of faeces in the rectum, forming a hard mass, owing to the want of tone in the bowel. The occurrence of this is attended by much discomfort and spasm of the bladder from pressure thereon, and this must be guarded against. Should its presence be suspected, a finger should be introduced into the rectum, the mass broken down, and removed by an enema of warm olive-oil.

Patients should, as a rule, be confined to their room, but not necessarily kept in bed, for three or four days before the operation. Poor, broken-down hospital patients will require to be kept under observation for several days at least, in order that they may be fed up, and their general health improved before operation.

I have entered somewhat at length into the details of the after-treatment, because I consider that an intelligent appreciation of, and attention to, them is not less essential to success than the skilful performance of the operation.

Secondary Hæmorrhage.

Secondary hæmorrhage has occurred in a few instances. It is a very rare sequela of the operation, but has to be dealt with occasionally.

Slight arterial hæmorrhage may occur from the supra-pubic wound on removal of the large drainage-tube on the fourth or fifth day. This is purely traumatic and due to the fact that the tube is gripped by the bladder. The utmost gentleness should be employed in removing the tube, which should be withdrawn slowly, and with a slight rotatory movement, should it be gripped very tightly by the wound. The bleeding from this cause is always trifling, and automatically ceases in a short time.

Should there be any obstruction to the free flow of the contents of the bladder through the tube during the early days after operation, the prostatic cavity is liable to be dilated, resulting possibly in venous haemorrhage from its walls. This is controlled by readjusting the tube in such a manner that a free outlet is gained to the urine, and by irrigating the bladder through the tube with boracic lotion as hot as the patient can bear.

But the most serious form of haemorrhage takes place, strange to say, in the case of patients in whom the healing process is most rapid, resulting in the suprapubic wound closing earlier than usual. Urine is then passed *per urethram* before the prostatic wound is sufficiently healed to bear the resultant pressure on its surface, and haemorrhage may take place owing to spasm of the bladder and the consequent undue pressure on the prostatic cavity. Should this occur, a full-sized rubber or gum-elastic catheter should be introduced through the urethra and tied in the bladder, so as to give free exit to its contents.

But should the haemorrhage persist, giving rise to pain and spasm from the accumulation of clots in the bladder, no time should be lost in reopening the suprapubic wound, and in reinserting a large drainage-tube for a few days, to relieve the pressure on the walls of the prostatic cavity. Hypodermic injections of ergotin and the administration by the mouth of calcium chloride should also be employed. The following is an illustrative case of secondary haemorrhage from this cause, and the method of dealing therewith.

CASE 185.—Gentleman, aged fifty-seven, seen with Mr. E. D. Madge, London, May 5, 1905. Prostatic symptoms for seven years; complete retention of urine in August, 1904; relieved by catheter, which had to be employed for some weeks, during which patient was laid up in bed with cystitis. Since this several attacks of pyrexia from urinary sepsis. Much blood in urine a fortnight ago. I introduced a catheter, and drew off 8 ounces residual urine, acid, specific gravity 1c12, containing pus.

Prostate much enlarged, bilobed, smooth, soft, movable, easily felt bimanually. General health fair.

On May 15, Mr. Madge being present, I enucleated the prostate, weighing 2 ounces, entire in its capsule, the time occupied being three and a half minutes; scarcely any bleeding or shock. During the first fortnight there was not an unfavourable symptom; in fact, healing was more rapid than usual, urine being passed freely *per urethram* May 26, and the suprapubic wound being dry next day. On May 29, whilst straining at stool, some blood was passed in the urine, and this continued off and on for some days. The tying in of a soft catheter temporarily relieved the bleeding; but on June 3 large clots blocked the catheter, and there was much painful spasm and straining in spite of repeated washing out of the clots. I therefore reopened the suprapubic wound, which was firmly healed, under an anaesthetic, and inserted a large-sized drainage-tube. After this bleeding entirely ceased. The tube was removed after a week. On June 14 the suprapubic wound was quite healed, and all the urine passed naturally.

On June 24 patient left the surgical home, passing and retaining his urine as well as he ever did, and he is now in excellent health.

LECTURE V

THE SCOPE AND LIMITS OF THE OPERATION OF TOTAL ENUCLEATION OF THE PROSTATE

In the lectures and papers published by me from time to time during the past four and a half years I have given full details of most of my first 206 cases of this operation. In each instance I have described the physical characteristics which the prostate presented before operation, as ascertained on examination: (1) By the finger introduced into the rectum; (2) bimanually; and (3) in many instances by the cystoscope.

I have, however, hitherto refrained from placing before the profession at large* a comprehensive classification of cases suitable for the operation. I have done so designedly till I should have acquired experience derived from a sufficiently large number of cases to make the classification more or less exhaustive and practical; for as time has gone on I have been gradually extending the scope of the operation. I feel that now, with the accumulated experience derived from over 300 cases of the operation, I am in a position to answer a question that is frequently put to me: In what class of cases of enlargement of the prostate is total enucleation of the organ indicated?

* The substance of this lecture was embodied in the opening address for the session 1904-1905 of the Oxford Medical Society, which I had the honour of delivering, but which has never been published.

Now, this is a question which cannot be answered off-hand. In arriving at a classification of cases suitable for the operation, apart from the patient's age and general state of health, the following special considerations have to be taken into account. (1) The specific symptoms dependent on the prostatic enlargement; and (2) the nature, size, and general conformation of the prostatic growth.

I. The various types of patient suffering from prostatic symptoms that apply for surgical relief may be classified thus:

1. Patients suffering from the usual symptoms of enlarged prostate in the earlier stages of the malady, in whom not more than an ounce or two of residual urine is found on introducing the catheter.
2. Those who have probably suffered from prostatic symptoms for several years, in which we detect a quantity of residual urine varying from 3 to 10 ounces, or even more, but who have never employed a catheter for the purpose of emptying the bladder.
3. Those suffering from over-distension of the bladder, with great frequency of micturition, possibly continuous dribbling of urine, but who have never been relieved by a catheter.
4. Patients in whom the conditions described in paragraph (3) have culminated recently in complete retention of urine, and in whom great difficulty is experienced in introducing a catheter.
5. Patients, who from time to time have had retention of urine, which was relieved by catheter, but who have not employed the instrument as a routine practice to empty the bladder daily.
6. Those who for weeks, months, or years have daily emptied the bladder by the catheter, once, twice, or oftener, but who can pass more or less urine naturally.

7. Those entirely dependent on the catheter, and who, in the advanced stages of the disease, will probably have suffered from one or more of the following complications—viz., cystitis, haemorrhage, vesical calculus, rigors with fever, and difficulty in introducing the instrument.

In the first of these types it will, as a rule, be unnecessary and inadvisable to attempt the removal of the prostate, because the enlargement of the organ will not have sufficiently advanced to render it prominent in the bladder, or to define adequately the lines of cleavage between the true capsule of the prostate and its enveloping sheath. But in one and all the other types the removal of the prostate should be entertained and advocated if on examination it presents those characteristics—to be presently described—that render its enucleation entire in its capsule practicable, there being no condition in the general health of the patient to bar an operation of this magnitude.

II. To ascertain whether the prostate is one capable of being enucleated entire, the patient, if capable of passing any urine naturally, is directed to empty his bladder as far as possible, and is then placed on a couch in the recumbent position. The bladder is now emptied of its residual urine by the aid of a catheter, and the quantity of residual urine noted. The forefinger of one hand, previously lubricated, is slowly introduced into the rectum, and, when the sphincter ani is thoroughly relaxed, a survey of the rectal aspect of the prostate is made. If the organ is found to be decidedly enlarged, presenting a well-marked tumour in the rectum, more or less rounded in shape, latterly bilobed with a well-marked groove or furrow in the median line, smooth on the surface, soft and somewhat dense and elastic to the touch, and, most important of all, movable, you know that you have to deal with the ordinary adenomatous enlargement of the gland of advanced life. If, in addition, from its promi-

nence in the rectum you estimate this tumour to be at least the size of a Tangerine orange, the case may be regarded as, in all probability, one in which the prostate is capable of being enucleated entire.

We next proceed to make a bimanual examination of the prostate. This is accomplished by placing the fingers of the unoccupied hand on the hypogastrium, and pressing them well down immediately behind the pubic arch, directing the patient at the same time to relax the abdominal muscles. Counter-pressure is made by the finger in the rectum. If the prostate be decidedly enlarged it will be felt between the fingers of the two hands, and can be slightly moved about, upwards, downwards, and from side to side, somewhat like a chronically-enlarged uterus. If it be very prominent in the bladder, the outgrowth in that viscus will be easily recognised, and in thin subjects the origin of this outgrowth, whether from the right or left lobe, or from both. In thin or moderately stout patients this method of examination is easily accomplished, and is most helpful for diagnostic purposes. In very stout subjects it is unsatisfactory. Occasionally we meet with patients who cannot relax their abdominal muscles. In such cases the examination can only be satisfactorily accomplished under the influence of an anæsthetic.

If on bimanual examination the prostate, with the characteristics already described, be felt distinctly, we can at once conclude that the case is one in which the organ can be enucleated entire in its capsule, no matter to what magnitude it may have attained. Prostates weighing from, say, about 2 to 6 ounces, are those most easily and rapidly enucleated, as the following cases will illustrate :

CASE 49.—Gentleman, aged sixty-three, first consulted me November 29, 1902, on the advice of Dr. Fennings of St. Leonards-on-Sea. Prostatic symptoms for ten years. Catheter employed for six months. Much pain,

great frequency of micturition and straining, causing involuntary actions of the bowels. Very feeble constitution; suffering from bad asthma and bronchitis. Prostate much enlarged *per rectum*, bilobed, soft, elastic, and movable. The case was regarded as a suitable one for operation, but postponement was advised till patient should get rid of the bronchitis, which he never did in winter.

Saw patient again in May, 1903, when the bronchitis had disappeared, but the asthma was as bad as ever. The prostatic symptoms had much

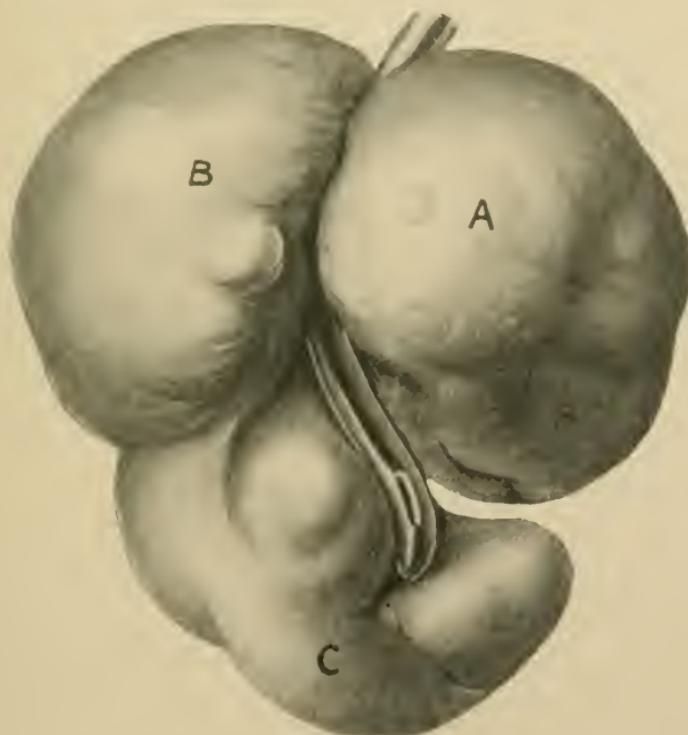


FIG. 31.—PROSTATE, WEIGHING 3½ OUNCES, REMOVED FROM PATIENT AGED SIXTY-THREE (CASE 49). ACTUAL SIZE.

A, Right lobe; B, left lobe, presenting a projection, C, into the bladder, the so-called 'middle lobe.' The catheter shows the tortuous course of the urethra.

increased. Catheter required three times daily; residual urine, 8 to 10 ounces, containing much pus.

On June 8, 1903, Sir Joseph Fayer and Mr. Walsham being present, I removed the prostate entire in its capsule, leaving the urethra behind. The patient was only eighteen minutes on the operating table, and the time occupied from commencing the suprapubic cystotomy till the

prostate was delivered from the bladder was five minutes. Scarcely any bleeding and no shock. The patient began to pass urine naturally June 20, though the fistula was somewhat slow in closing. He is now in excellent health, untroubled by any urinary symptom.

The prostate (Fig. 31), which weighs $3\frac{1}{4}$ ounces, is a most interesting specimen, presenting an irregularly-curved outgrowth of the left lobe in the bladder (the so-called 'middle lobe'), which acted as a ball-valve to the inner orifice of the urethra.

CASE 53.—Gentleman, aged seventy-four, sent by Dr. J. Williamson, Richmond, July 22, 1903, with prostatic symptoms of seven years' duration. Retention a fortnight previously, and no urine since then passed naturally. Owing to impossibility of introducing the catheter,

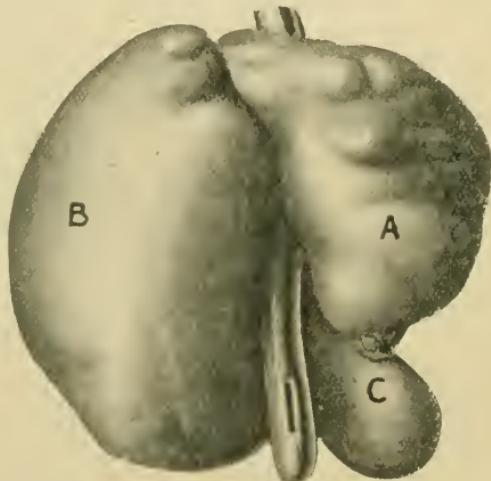


FIG. 32.—PROSTATE, WEIGHING $1\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-FOUR (CASE 53).

A, Right lobe, contained a nipple-shaped projection, C, in the bladder ; B, left lobe.

bladder tapped suprapubically a week before. Patient very thin and in feeble health. Urine contains much pus and blood. Prostate enlarged *per rectum*, soft, smooth, movable.

On July 24, Dr. Williamson, Mr. Boyce Barrow, Major J. F. Blood, and others being present, I removed the prostate entire in its capsule, leaving the urethra behind, the time occupied from commencing the operation till the prostate was delivered from the bladder being only two minutes. There was very little bleeding and no shock. The patient recovered without any unfavourable symptom. On March 19, 1906, he wrote : 'I never cease to think of you, and at night to bless you, for such a restoration—as perfect as can be.'

The prostate (Fig. 32), which weighs $1\frac{3}{4}$ ounces, presents a well-marked so-called 'middle lobe,' which is merely an outgrowth of the right lobe in the bladder.

CASE 112.—A gentleman, aged sixty-two, consulted me on June 29, 1904, on the advice of Dr. R. G. Pollock, Tiverton. Prostatic symptoms for three years. Retention of urine two years previously and on several

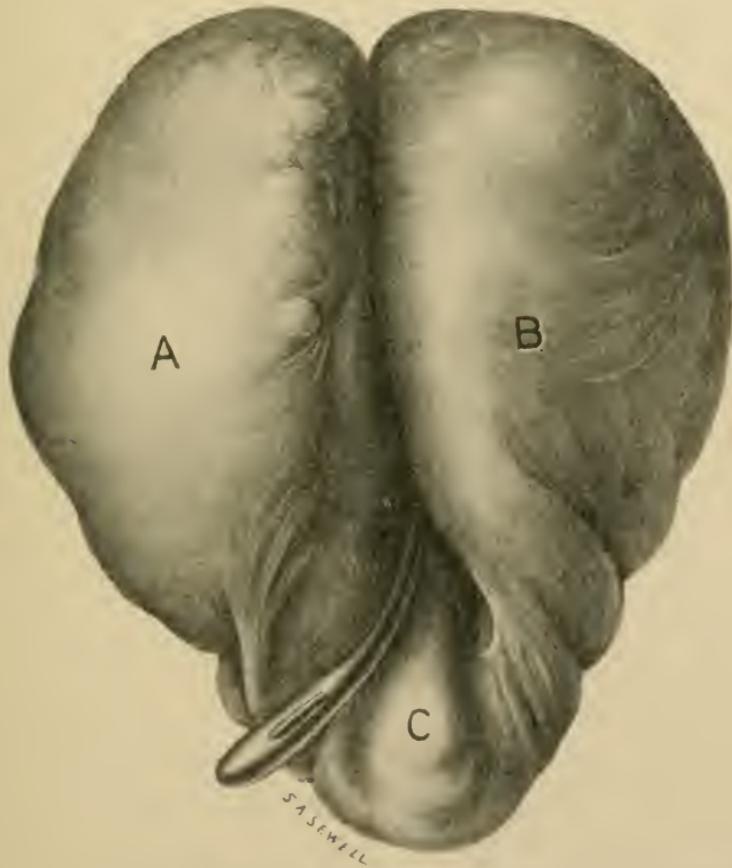


FIG. 33.—PROSTATE, WEIGHING $6\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-TWO (CASE 112).

A, Left lobe; B, right lobe, giving off an outgrowth, C, in the bladder. Catheter shows tortuous course of urethra.

occasions within the next year; relieved by catheter. Dependent on catheter for one year. Repeated attacks of cystitis, orchitis, and haemorrhage, with clots blocking the catheter; much pain. Prostate greatly enlarged *per rectum*, bilobed, smooth, tense, elastic, movable. Easily

felt bimanually ; the size and shape of a large pear. Urine contained pus, blood, and albumin. Patient very stout ; general health fair.

On July 4, Lieut.-Colonel D. French-Mullen, I.M.S., and Dr. Laing Gordon, of Florence, being present, I enucleated the prostate entire in its capsule, leaving the urethra behind. Time from commencing the operation till the prostate was delivered from the bladder, six minutes. More bleeding than usual, but no shock ; uninterrupted recovery. Passed some urine naturally on July 22 ; wound closed on July 26. Went home in good health on August 5 ; able to pass and to retain his urine, which was normal, as well as he ever did. On March 6, 1906, he writes : 'I

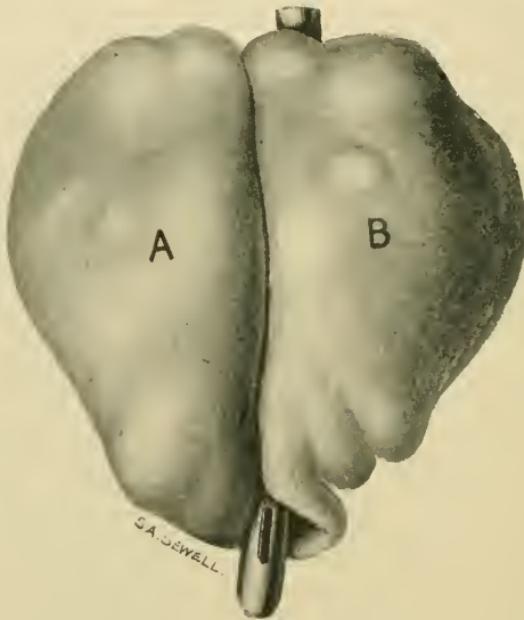


FIG. 34.—PROSTATE, WEIGHING $1\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-SEVEN (CASE 133).

A, Left lobe ; B, right lobe.

am able to retain and pass urine without any difficulty ; and I now turn the scale at 212 pounds, which is heavier than I have ever been before.'

The prostate (Fig. 33), which weighs $6\frac{3}{4}$ ounces, is a fine specimen of symmetrical adenomatous enlargement. Two-thirds of the prostate projected into the bladder.

CASE 133.—J. N.—, aged sixty-seven, sent by Dr. Duckworth Barker, Bexhill, admitted to St. Peter's Hospital, October 4, 1904, for prostatic symptoms of four years' duration. Had retention of urine on four occasions ; relieved by catheter. Residual urine, 8 ounces, containing some pus and albumin. Had 'a stroke' three months previously, affecting

the whole of left side and speech, from which he had only partially recovered. Prostate felt enlarged *per rectum*, bilobed, smooth, soft, movable; bimanually felt to be size of a Tangerine orange.

On October 12 I had the honour of operating in presence of Professors Poirier, Hartmann, Lucas-Championnière, Reynier, Proust, and many other distinguished French surgeons during their visit to London. The

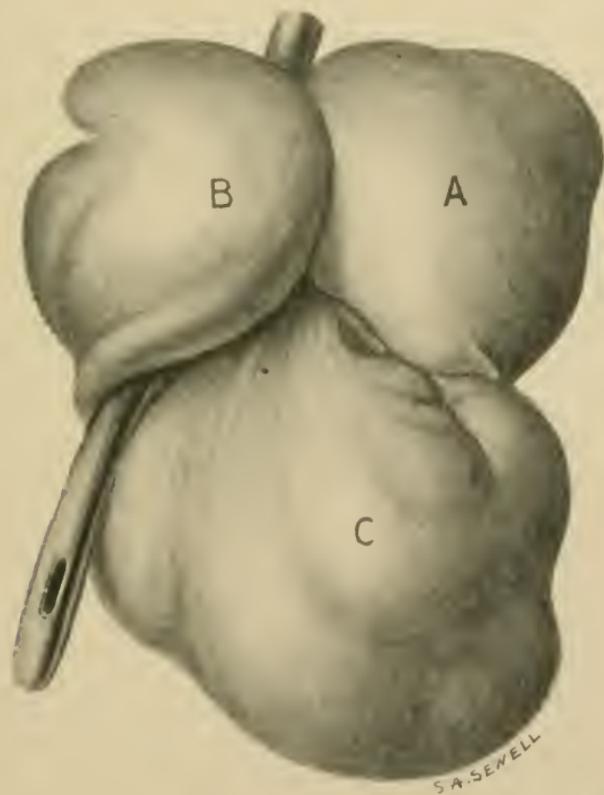


FIG. 35.—PROSTATE, WEIGHING $3\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-SEVEN (CASE 193).

A, Right lobe, terminating in bladder in the outgrowth, C, so-called 'middle' lobe; B, left lobe.

prostate (Fig. 34) was easily and rapidly enucleated entire in its capsule, the urethra behind the verumontanum coming away with it, the time occupied from commencing the operation till the prostate was delivered from the bladder being three minutes. Scarcely any bleeding or shock. The prostate, which was symmetrically enlarged, weighed $1\frac{3}{4}$ ounces.

Uninterrupted recovery, some urine passing naturally November 2, and the wound being dry November 4. Patient returned home quite

well November 25, passing and retaining his urine as well as ever he did. On January 20, 1905, Dr. Barker wrote : 'The operation has been a great success. He can hold his water all night with comfort, and can go for four to six hours during the day without any difficulty.' On March 5, 1905, the patient wrote : 'I am keeping perfectly well.'

CASE 193.—This gentleman, aged sixty-seven, who had come from California on the advice of Dr. Tom Davis, Los Angeles, for the purpose of having his prostate removed, consulted me on May 31, 1905. Prostatic symptoms had existed fifteen years. Retention of urine six years ago, since when he has employed the catheter ; entirely dependent thereon four years. Has had repeated attacks of cystitis, and latterly difficulty in introducing the catheter. The prostate was much enlarged *per rectum*, bilobed, smooth, soft, movable ; easily felt bimanually, being very prominent in the bladder. General health fair ; thin, but wiry.

On June 5, in the presence of Professor J. Kaarsberg and Drs. A. Helsted and A. F. Just, of Copenhagen, I removed the prostate entire in its capsule rapidly and easily, the time from commencing the suprapubic incision till the prostate was delivered from the bladder being three minutes. There was practically no bleeding and no shock.

The recovery was uneventful, some urine being passed naturally on June 16, and entirely in this way after June 22. By June 29 he was walking about, passing and retaining urine, which was quite clear, as well as he ever did. Writing from California on November 19, 1905, his wife says : ' My husband is perfectly well and completely cured. He has not had the slightest trouble since he left the home. He goes to bed about ten o'clock, and is not disturbed till seven or eight in the morning.'

The prostate (Fig. 35), which weighs $3\frac{1}{2}$ ounces, is an interesting specimen, displaying a large so-called 'middle' lobe (c) the size of a Tangerine orange, growing mainly from the right lobe. This portion, which lay entirely in the bladder, was merely covered by mucous membrane.

But prostates of larger sizes can be similarly dealt with, though those attaining to enormous dimensions present considerable difficulties, mainly owing to their being impacted beneath the pubic arch, and to the difficulty experienced in reaching with the finger the distal portions of the growth—those in proximity to the rectum and triangular ligament—to separate the capsule from the enveloping sheath. I will now give details of some instances of very large prostates removed by me, illustrating the difficulties encountered, and the manner in which these difficulties may be surmounted.

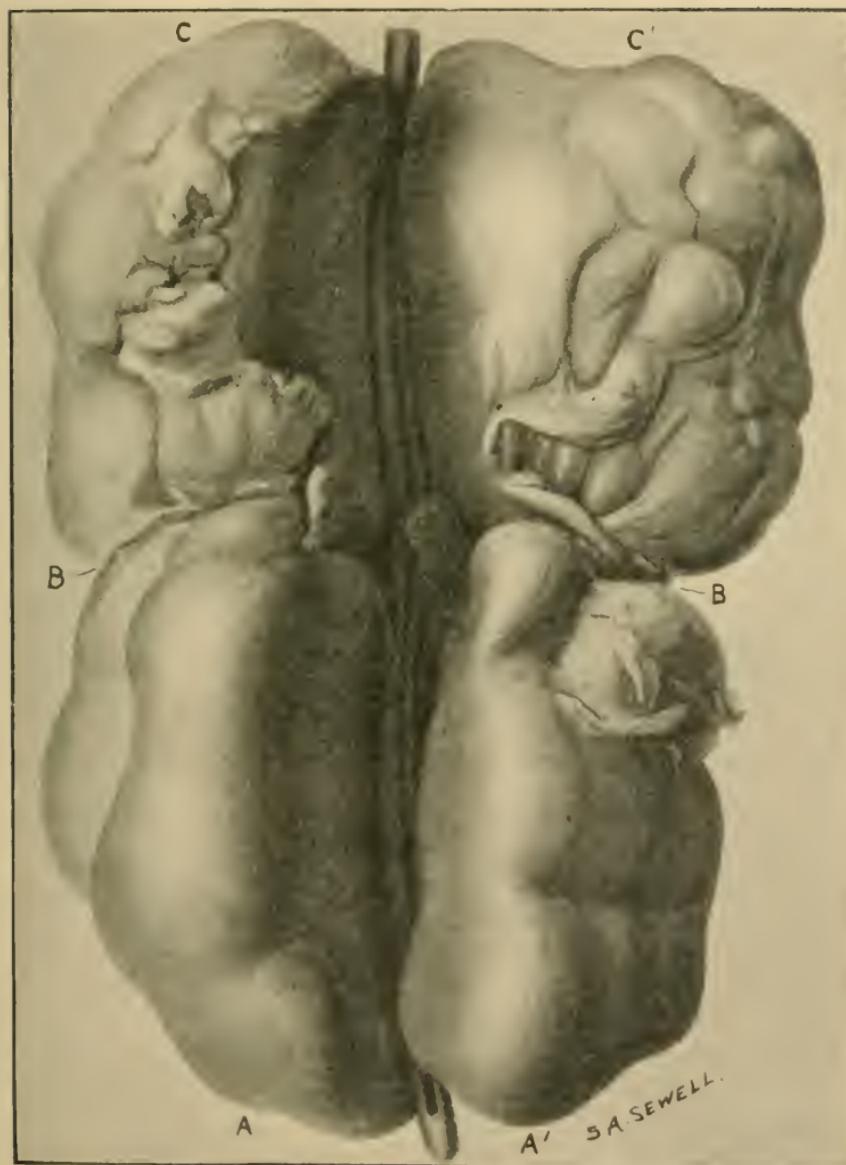


FIG. 36.—ENORMOUS PROSTATE, WEIGHING 10 $\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-FIVE (CASE 5). EXACT SIZE.

The catheter shows the position occupied by the urethra. Portion A, A', B, B', lay in the bladder, and B, B', C, C', lay outside the bladder.

CASE 5.—This gentleman, aged seventy-five years, came from France for operation on the advice of the late Dr. R. Cox, of Reading, and Dr. J. A. Philip, of Boulogne. Completely dependent on the catheter for fourteen years. Repeated attacks of cystitis and haematuria. Much difficulty in introducing the catheter, which latterly he had to use every half-hour night and day. A specially long catheter was necessary, from 14 to 16 inches being introduced before the urine flowed. The urine was putrid from pus and blood, and the patient was emaciated and in great agony. As Dr. Philip wrote : 'It was only his fine constitution that enabled him at his age to survive a period of martyrdom which was increasing in severity.' The prostate felt enormously enlarged *per rectum*, and the kidneys were tender and probably much affected.

On September 6, 1901, with Mr. C. Braine as anæsthetist, I removed the entire prostate (Fig. 36) in its capsule in the manner already described. The operation lasted half an hour. There was no collapse, and on waking from the anæsthetic the patient began to laugh and joke. The temperature never rose above 100° F., and remained normal after September 12. Six ounces of urine passed naturally on October 7, and the wound had closed by the 17th. On November 3 he returned to France. On April 14, 1903, he wrote : 'I am perfectly well with regard to my bladder, and suffer no pain or inconvenience from it, and pass my urine as well as I ever did before the prostate troubles.' In September, 1903, two years after the operation, I spent part of a day with him in France ; he was then in excellent health, and as fine a man of his age as one could meet. On May 9, 1906, he writes : 'My waterworks are all right, and I feel as well in that respect as I ever did in my life, and am wonderfully well for my age.'

The prostate (Fig. 36) is an enormous one, weighing 10½ ounces.

CASE 106.—On June 4, 1904, I was called to Ipswich to see, in consultation with Dr. Branford Edwards, a gentleman, aged seventy-three, who had suffered from prostatic symptoms for over fifteen years. Retention of urine in 1889 ; relieved by catheter. Entirely dependent on catheter for ten years, during which has had repeated attacks of acute cystitis and haemorrhage. Calculi crushed on three occasions by another surgeon, the last being in February, 1904, since when the patient has been much worse, requiring a permanent nurse. Catheter used every two hours ; bladder washed out three times daily. Still urine very foul, containing much pus and mucus and some blood. Much difficulty in introducing catheter, which passes in 14 inches before the urine flows. Patient in a very miserable condition, requiring opiates to relieve pain. Prostate enormously enlarged *per rectum*, filling the space between the pubic arch and the sacrum, round, tense, smooth, scarcely movable owing to its size. Examination gave much pain.

On June 14 I enucleated the prostate entire in its capsule, Mr. C. Braine, anæsthetist, Drs. Edwards and Brown of Ipswich and Professor

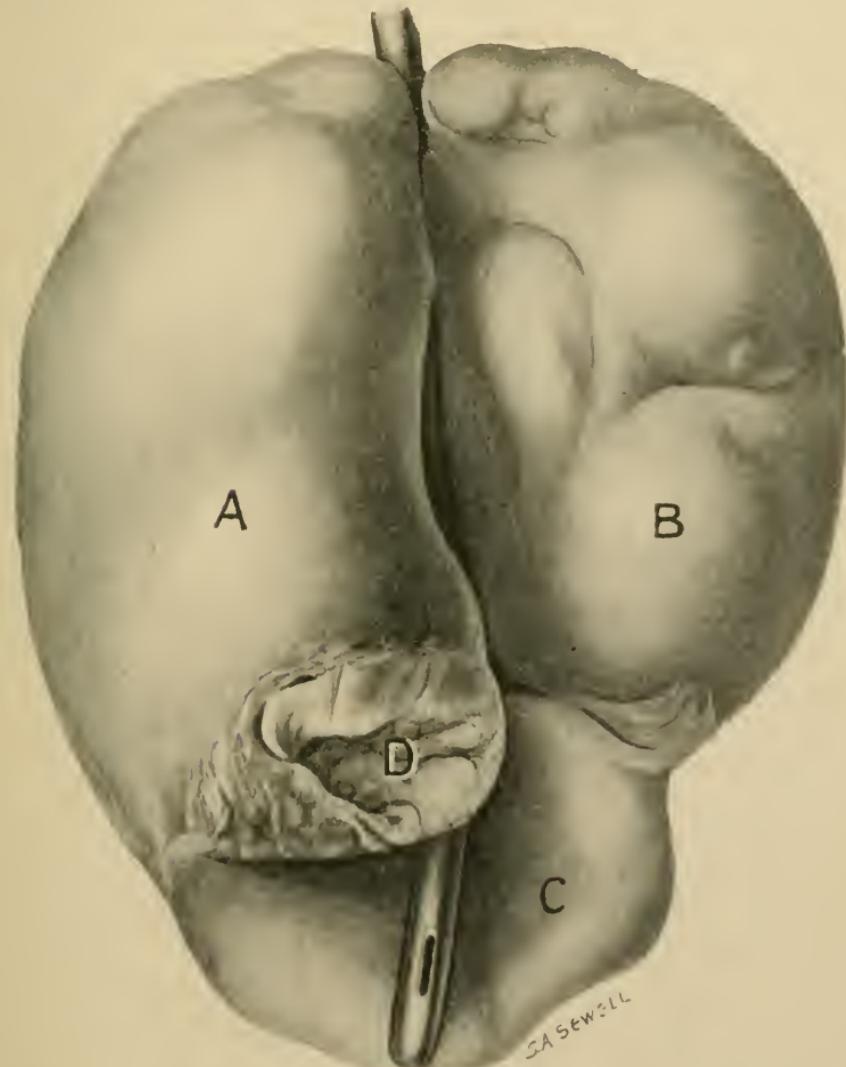


FIG. 37.—ENORMOUS PROSTATE, WEIGHING 14 $\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-THREE (CASE 106). ACTUAL SIZE.

A, Left lobe, showing an ulcer at D, caused by vesical calculus; B, right lobe; C, saucer-shaped lip connecting the lateral lobes, and prominent in bladder.

Pye of Galway being present. On opening the bladder suprapubically I found both lobes (Fig. 37, A and B), enormously enlarged, filling its

cavity. They were more or less symmetrical, separated by a deep fissure in front, continued forward to the vesical neck, and united behind by a thick, prominent, scoop-shaped lip (c). I could pass my finger down behind the prostate between it and the base of bladder for a space of 4 inches, and in this position lay much phosphatic débris embedded in thick muco-pus. The prostate was enucleated as a whole into the bladder after severe manual, or rather digital, labour, great difficulty being experienced in separating the capsule from the sheath owing to the great size of the gland and its being jammed between the pubic arch and sacrum, like the foetal head in parturition. The suprapubic wound in the bladder had to be enlarged, and the lobes separated by the finger to facilitate delivery of the prostate. There was scarcely any bleeding—a remarkable fact considering the enormous size of the prostate. There was no shock, the patient being cheerful, even jocular, during the day. Time occupied from commencing the suprapubic wound till the prostate was delivered from the bladder, fourteen minutes.

Recovery uneventful; in fact, patient felt no ill-effects after the operation, the temperature remaining normal throughout. Passed 4 ounces of urine naturally July 4; wound closed July 12. Went home July 19 in excellent health, able to pass and retain his urine as well as he ever did. On March 4, 1906, he wrote: 'I am perfectly well. I can pass water with the greatest comfort, and can retain it from three to four hours. I have perfect control over it. I am really strong, and can walk four or five miles without feeling tired. I am up to my normal weight of 13 stones 2 pounds. When I returned home after the operation I only weighed 10 stones 6 pounds. I am leading a most comfortable life.'

The prostate (Fig. 37) weighs $14\frac{1}{4}$ ounces, and is the largest I have removed. It is a fine specimen, enucleated complete in the capsule. The lateral lobes (A, B) are almost symmetrical, and united behind by a thin, saucer-like lip (c), which interfered much with the introduction of the catheter. At d, the vesical end of the left lobe, is an ulcer, no doubt caused by pressure of a vesical calculus. The labour involved in removal of this prostate was very severe, and my fingers, hands, and arms ached for two or three days owing to the muscular exertion necessary.

CASE 165.—Gentleman, aged seventy-four, first seen by me at Brixton, January 18, 1904, in consultation with Dr. A. D. Jollye. Prostatic symptoms had existed six years, during which time retention of urine had frequently occurred and was relieved by the catheter, which was, however, not habitually employed. There was intense pain and frequency of micturition, and for two days the urine had contained blood. The residual urine only amounted to 5 ounces, but the prostate felt enormously enlarged, globular, dense, smooth, movable, and placed very high up in the rectum. Sounded, but no stone found. The patient being averse to

operation, I advised the employment of the catheter four or five times daily.

I next saw him January 2, 1905, when he desired to have the prostate removed. Though the catheter had been regularly employed five or six times daily, the symptoms had grown gradually worse, so that he was now suffering from severe cystitis, with alkaline urine containing much blood and ropy, offensive muco-pus. The prostate was so tender that he could scarcely bear examination by the urethra or rectum. The patient's condition was indeed pitiable, and, in addition to the local troubles, he had lost much flesh, though still very stout ; his pulse was irregular and intermittent, and he was suffering from chronic bronchitis, with rapid and laboured breathing. Under these circumstances I declined to operate till the bronchitis should have subsided, probably during the ensuing summer ; but on January 23 he entered a surgical home and begged for operation, stating that he preferred any risk therefrom rather than employ the catheter any longer.

On January 26, Mr. C. Braine being the anaesthetist and Dr. Jollye assisting, I opened the bladder suprapubically, and found a phosphatic calculus lying behind the prostate. This was removed, and weighed 63 grains. I then proceeded to enucleate the prostate, which was larger than a cricket-ball. The lobes were symmetrically enlarged, and two-thirds of the mass lay in the bladder, covered merely by mucous membrane. Owing to the stoutness of the patient and the rigidity of his muscles, even under the most profound anaesthesia, great difficulty was experienced in reaching the distal aspect of the prostate to enucleate it out of the sheath towards the rectum and strip it off the triangular ligament. Much physical force was required in the enucleation, which occupied twenty-six minutes instead of the usual three to six minutes. The two lobes were removed separately. There was considerable bleeding, and the patient seemed much collapsed, with feeble, irregular pulse ; by the evening, however, the pulse was strong and regular, and the patient moved about in bed without aid. On February 2 he passed urine copiously by the urethra, and on February 17 the abdominal wound had closed. The bladder had to be washed out daily for some weeks, as the urine contained much muco-pus. On March 18 he went home in good health. He could retain 11 ounces of urine, and then pass it as well as ever he did. There was no residual urine.

The prostate weighs $9\frac{1}{4}$ ounces. On March 30 he called to see me. He was in excellent health and spirits ; able to pass and retain his urine, which was quite clear, as well as he ever did.

This case was one of the most anxious that I have dealt with, particularly as the chronic bronchitis continued for some weeks after the operation.

CASE 180.—Gentleman, aged sixty, seen in consultation with Dr. J. J. Macgregor, of London, April 11, 1905. Has had difficulty in micturition twelve years. Ten years ago catheter passed, followed by rigors. Since then has employed catheter regularly ; entirely dependent thereon for eight years. Has had orchitis twice, cystitis repeatedly, and haematuria occasionally. Patient's condition very distressing ; great

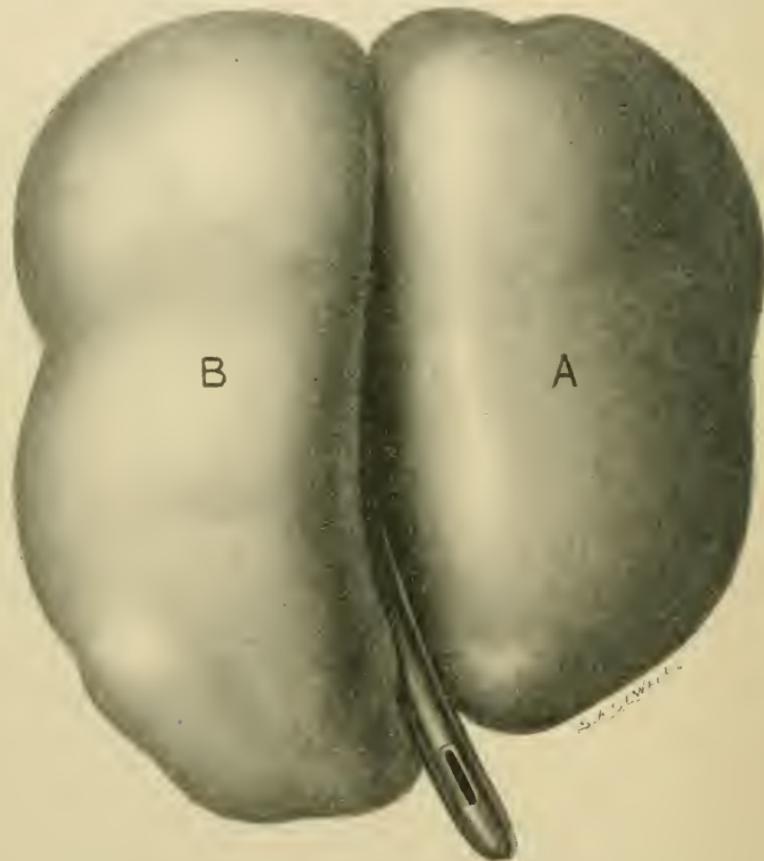


FIG. 38.—PROSTATE, WEIGHING $8\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY (CASE 180).

A, B, Right and left lobes respectively. The transverse constriction is the boundary between the intravesical and extravesical portions.

loss of flesh and appetite during last two months ; extreme dryness of mouth and throat ; urine turbid, specific gravity 1010, contains pus and albumin ; prostate enormously enlarged, bilobed, smooth, soft, rather dense, but movable ; easily felt bimanually.

On April 21, Dr. Silk being the anæsthetist and Dr. Macgregor

assisting, I removed the prostate entire. On opening the bladder the prostate was found projecting into it like an enormously hypertrophied cervix uteri, the left lobe being more prominent than the right. The inner orifice of the urethra was distorted into an irregular deep slit between the lobes. The enucleation was easily accomplished, but much difficulty was experienced in delivering the prostate from the bladder. Eventually it was grasped by one lobe and withdrawn like an open oyster. There was considerable bleeding, and the time occupied was eight minutes, five of which were spent in delivering the prostate from the bladder. Some urine was passed *per urethram* April 22, but the suprapubic wound was slow in closing. It was thoroughly healed by June 7, after which all urine was passed naturally. The patient left for home on June 21 in excellent health, passing and retaining his urine, which was quite clear, as well as he ever did. On March 4, 1906, he wrote: 'I continue to be in good health. I retain urine, and, in fact, have no difficulty now.'

The prostate (Fig. 38), which weighs $8\frac{1}{2}$ ounces, is a fine specimen of almost symmetrical enlargement of both lobes. The enormous size of the gland, considering the age of the patient, is very remarkable. It is obvious that the enlargement had considerably advanced before the age of fifty.

Let us now contrast the characteristics of adenomatous enlargement of the prostate with those of cancer of that organ in a more or less advanced stage. In carcinomatous enlargement we find on rectal examination that the prostate is mainly hard—of stony hardness in most instances—with possibly soft, boggy patches due to broken-down tissue. The outline will, as a rule, be irregular, the lobes being ill-defined, and the median furrow partially or wholly obliterated. In such cases the organ will be nodular or ridged, with intervening deep, irregular furrows. But occasionally the cancerous prostate will be smooth and globular, like an ivory ball. Most important of all for diagnostic purposes, the prostate will be immovably fixed in the pelvis, owing to the invasion by the growth of the surrounding tissues. Bimanual examination will confirm the presence of these characteristics; but, as a rule, in cancer of the prostate no great prominence of the organ will be felt inside the bladder,

the growth invading the surrounding tissues rather than advancing into the bladder. We will have, as additional aids to diagnosis, the enlargement of the glands in the groins in advanced stages of the malady; and at an earlier stage small glands, like sago grains, may be felt *per rectum* covering the surface of the tumour beneath the mucous membrane; the clinical history of the case—viz., the rather sudden onset and rapid advance of the usual prostatic symptoms; the progressive loss of flesh; the feeling of lassitude, debility, and undue fatigue; the failure of appetite; the typical cachexia; and the pains in the loins, sacrum, and lower limbs, the result of pressure on the nerves, so characteristic of this disease.

It is impossible to enucleate a cancerous prostate in this advanced stage, owing to the extension of the disease to the adjacent tissues.

In the earlier stages of the malady, however, whilst the prostate is still movable and the surrounding structures uninvolved, the gland can, and should, be removed, my experience of operation under such conditions being most favourable. It is, however, impossible to give a definite diagnosis of malignancy before removal of the gland in cases of this kind, though the presence of dense nodules in the prostate, combined with the rapid progress of the symptoms, will arouse suspicions in the surgeon's mind, suspicions which, I need scarcely say, should be communicated to the patient's relatives before operation is undertaken.

It is, however, when we have to deal with adenomatous enlargements of smaller dimensions—say, less than $1\frac{1}{2}$ ounces in weight—that the greatest difficulties present themselves to the surgeon's mind as to the possibility of their enucleation entire being practicable; for I may say, as the records of my published cases prove, that you may find absolute and complete dependence on the catheter, with a prostate weighing $1\frac{1}{2}$ ounces, 1 ounce, or even less. A prostate of 1 ounce in

weight will scarcely feel enlarged *per rectum*, and, of course, it cannot be felt bimanually. The only way in which we can determine the possibility of enucleating a prostate of this size is by the aid of the cystoscope. If on cystoscopic examination we find that there is a well-defined outgrowth of one lobe, or marked prominence of both lobes, in the bladder, the case may be pronounced to be one permitting of enucleation of the gland entire, no matter what its size may be as felt *per rectum*. I will give details of some examples of the kind :

CASE 66.—Gentleman, aged fifty-six, seen in consultation with Mr. John Langton, Harley Street, November 6, 1903. Prostatic symptoms for two years. Cystoscopic examination attempted a year previously, but unsuccessfully, owing to bleeding. Intense frequency of micturition by day and night so that sleep was impossible. Condition most miserable. Much averse to using catheter ; in constant dread of retention. Residual urine only 2 ounces, clear, healthy. Prostate palpably enlarged, bilobed, soft, movable. We made a cystoscopic examination, November 7, with difficulty, as bleeding again set in ; but the view eventually obtained revealed a thumb-like outgrowth of the right lobe of the prostate in the bladder. I at first counselled postponement of operation till the prostate should have grown larger, and thus become more easy of removal ; but Mr. Langton, who knew of the patient's sufferings, both physical and mental, was averse to delay, and eventually it was decided to operate at once.

Operation, November 9. On introducing my finger into the bladder the right lobe was found projecting inwards for $\frac{3}{4}$ inch. The prostate was easily and rapidly enucleated, only four minutes elapsing from commencing the suprapubic incision till the gland was delivered from the bladder. Rapid and uneventful recovery, urine passing naturally November 27, and the wound being dry December 1. On December 3 he left the home perfectly well, able to retain his urine for five or six hours, and to pass it naturally—'not so well since he was a boy,' as the patient expressed it. On March 8, 1906, he wrote : 'I have had no trouble whatever in retaining and passing urine since I saw you.'

The prostate (Fig. 39), which weighs 1 ounce, is a pretty specimen, and shows the thumb-like outgrowth from the right lobe in the bladder, which no doubt acted as a foreign body, giving rise to irritation, and acting as a ball-valve to the urethral orifice.

CASE 93.—Eminent public man, aged seventy-two, seen with Dr. P. F.

Barton, Wimbledon, March 26, 1904. Did not notice any urinary troubles till November, 1903, when he had great frequency of micturition with foul urine, and great distension of the abdomen. Catheter passed, and $5\frac{1}{2}$ pints of fetid urine drawn off. Entirely dependent on catheter since then; urine never free from pus; contains albumin and casts. Prostate not felt enlarged *per rectum*, but cystoscopic examination on April 13 revealed an outgrowth therefrom in the bladder. Health indifferent; had lost 17 pounds in weight in a few months.

On May 23, Dr. F. Hewitt anæsthetist, I removed the prostate, weighing $\frac{3}{4}$ ounce, entire in its capsule (Fig. 41). There was a lower lip, $\frac{1}{2}$ inch

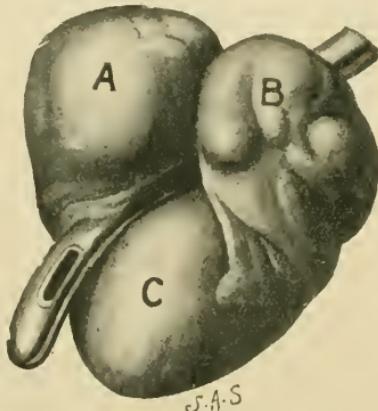


FIG. 39.—PROSTATE, WEIGHING 1 OUNCE, REMOVED FROM PATIENT AGED FIFTY-SIX (CASE 66).

A, Left lobe; B, right lobe; C, finger-like outgrowth in bladder from right lobe. Catheter indicates course of urethra.

long, projecting in the bladder, and acting as a valve to the inner orifice, which was also stenosed. Urine commenced to pass naturally April 14; wound closed May 22. Went home May 28, able to pass and retain urine normally. I have seen the patient recently; he is in good health, and able to pass and retain urine as well as ever.

CASE 182.—Gentleman, aged sixty, sent by Dr. J. F. Wolfe, Heavitree, suffering from the usual prostatic symptoms for five years. Catheter passed daily in December, 1904, but abandoned because patient could not introduce it himself. Cystitis then set in, accompanied by intense pain and frequency of micturition, which continued till I saw him in April, 1905. I drew off 28 ounces residual urine, which was alkaline, and contained pus and mucus, specific gravity 1010. Patient had lost much flesh, and intense thirst was a prominent symptom, as I find it is frequently when chronic over-distension of the bladder is present.

On April 27, 1905, I enucleated the prostate (Fig. 40) entire in its

capsule, the weight being $\frac{3}{4}$ ounce. The prostate was very dense, but showed no signs of malignancy. Urine commenced to pass naturally May 16, and the wound was closed May 19. On May 29 he left for home, able to pass and retain urine naturally. On March 7, 1906, he writes : 'My general health is very good. I am able to pass urine fairly freely, and to retain it.'

This (Fig. 40) is one of the smallest prostates I have removed. It is a perfect specimen, complete in its capsule.

CASE 149.—On September 24, 1904, I examined a patient, aged fifty-seven, sent by Dr. Latham, of Cambridge. He had suffered from prostatic symptoms for seven years. Six years ago he had retention of urine,

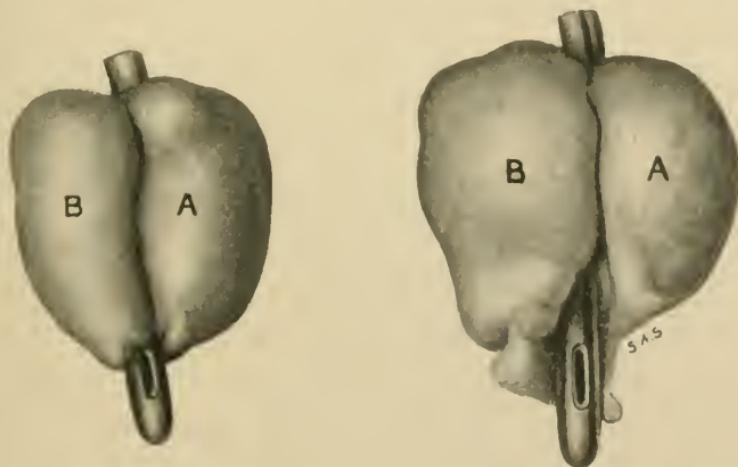


FIG. 40.—PROSTATE REMOVED FROM PATIENT AGED SIXTY (CASE 182).

FIG. 41.—PROSTATE, WEIGHING $\frac{3}{4}$ OUNCE, REMOVED FROM PATIENT AGED SEVENTY-TWO (CASE 93).

which was drawn off by the catheter, on which he had been practically dependent ever since. He has had repeated attacks of cystitis, haemorrhage, and orchitis. The urine contained pus and albumin, but was acid ; specific gravity 1015. The prostate was not felt much enlarged *per rectum*, but bilobed, dense, and movable. Bimanually it was felt projecting in the bladder. On the patient's return home he had a severe attack of cystitis with pyrexia, which prevented his coming to London for operation till the middle of November.

On November 23 I enucleated the prostate, which weighed $1\frac{1}{4}$ ounces, entire, easily and rapidly, the time occupied being five minutes. The prostate presented in the bladder in the form of two polypoid outgrowths (Fig. 42, B, A), that from the right lobe being the size of a plum, and that

from the left the size of a cherry. These two outgrowths were separated from the main body (c) of the prostate by a narrow neck produced by constriction of the sphincter muscle, a portion of which came away with the prostate.

The recovery was uninterrupted save for a slight swelling of one testicle. Urine passed *per urethram* on December 12, and the wound was dry December 18. On December 29 he went home in good health, able to pass and retain his urine naturally. On February 24, 1906, he writes: 'I am glad to say there is no difficulty in passing and retaining urine. All is well.'

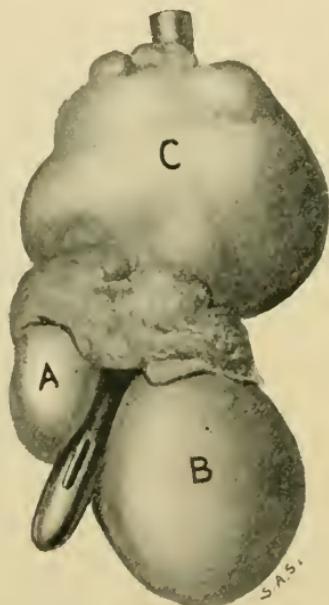


FIG. 42.—PROSTATE, WEIGHING $1\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED FIFTY-SEVEN (CASE 149).

A and B, outgrowths in the bladder from the right and left lobes respectively, separated from the main body, C, by a narrow neck.

A question which will naturally suggest itself is this: How is it that prostates of these sizes—which, indeed, are not much larger than that set down in the text-books as the average of the normal prostate—can give rise to serious symptoms, possibly culminating in complete retention of urine and dependence on the catheter? The explanation will be found in the following considerations.

1. The late Sir Henry Thompson found from examination of some two hundred prostates dissected by himself and Dr. Messer, of the Royal Naval Hospital, Greenwich, and assumed to be normal, that the average weight was about $4\frac{1}{2}$ drachms. But this included the weight of the sheath formed from the recto-vesical fascia, whereas the latter is left behind in my operation. The average weight of the prostate included in its true capsule, exclusive of its sheath, which corresponds to what is removed in my operation, would be considerably less than this. Now, some of the prostates referred to weighed only from 2 to 3 drachms, whilst others weighed 6 or 7 drachms. The portion included in the true capsule of a prostate weighing with its sheath 2 drachms would probably not weigh more than $1\frac{1}{2}$ drachms. This, if hypertrophied to a size weighing 1 ounce, would be relatively as enlarged, and might cause just as severe symptoms, as a prostate of 6 drachms hypertrophied to 3 or 4 ounces, and might be as easily enucleable.

2. The obstruction caused by an enlarged prostate does not altogether depend on its size. Of more importance, indeed, in this connection would seem to be the tightness with which it is bound down by the encasing sheath of recto-vesical fascia, and the extent and conformation of the out-growth in the bladder. We have seen that in Case 93, already recorded, a prostate weighing only $\frac{3}{4}$ ounce, situated mainly extravesically, and tightly compressed by its surrounding sheath, caused complete obstruction to the flow of urine for six months previous to operation; whereas a prostate enlarged to several ounces in weight may give rise to little trouble for many years, provided that the encasing sheath be loose, elastic, and yielding, or that in the course of its enlargement the organ escapes from its natural extra-vesical position, and becomes mainly intravesical, being thus set free from the encircling grip of the sheath. Prostates

thus displaced into the bladder may afford no evidence of enlargement to the finger placed in the rectum, but will, as a rule, be detected on bimanual examination, or by the cystoscope. The following are instances of this abnormal type :

CASE 36.—Sir J. D.—, a distinguished member of the medical profession, aged seventy-one, seen at Putney in consultation with Mr. E. White on February 28, 1903. Three years previously had painless haematuria for fourteen days without apparent cause. Remained quite well since then till January 21, 1903, when bleeding again set in, at first intermittent, but latterly continuous, which necessitated his remaining in bed for the last three weeks. At times the bleeding was very profuse, almost pure blood passing. The only other symptoms were great frequency of micturition since taking to bed, not before ; some pain at the neck of bladder ; and uneasiness in the loins, particularly the left. The catheter had latterly been passed twice daily and the bladder washed out. Rapid loss of flesh with anaemia during last few weeks. The patient had been seen several times by Dr. Allchin and Mr. Makins, by whose advice I was called in consultation.

I drew off 15 ounces residual urine containing much blood. Sounded, but no stone detected. Prostate somewhat enlarged *per rectum*, but not at all prominent. Bimanually some fulness felt in the bladder, of an indefinite nature. The cause of the haemorrhage was thus very obscure, and grave apprehensions were entertained by the medical gentlemen mentioned and myself that its source was a growth either of the bladder or kidney.

The patient was conveyed to London by ambulance, March 2, and kept in bed in a surgical home, under the observation of Mr. Makins and myself. Rest and astringents for a week had little or no effect in reducing the bleeding, and the latter rendered diagnosis by the cystoscope impossible. Examination of the kidneys by the X rays negative. Eventually we came to the conclusion that the haemorrhage was due either to a growth in the bladder or an outgrowth of the prostate, so we determined to open the bladder suprapubically for diagnosis and such measures as might be found advisable.

On March 9, Mr. White giving the anæsthetic, and Mr. Makins kindly assisting in consultation, cystoscopic examination revealed an irregular mass in the bladder ; but the view became so rapidly obscured from the bleeding that no definite opinion as to its nature could be formed. Suprapubic cystotomy was forthwith performed, and on introducing my finger I found, happily, that the growth consisted of a very decided out-

growth from both lobes of the prostate, united below, and forming a **U**-shaped or cart-horse-collar projection in the bladder. The lower lip of this projected $1\frac{1}{2}$ inches beyond the neck of the bladder. The prostate was easily and rapidly enucleated entire in its capsule, the urethra being left behind. There was very little bleeding or shock. The patient made a most satisfactory recovery, passing some urine naturally March 29, and the wound being quite dry April 1. On April 8 he left for home in good health, retaining and passing urine quite naturally. Since the operation there has been no trace of haemorrhage.

On March 9, 1906, three years after the operation, the patient wrote : "I have no urinary troubles whatever, am never disturbed at night, and can retain and pass urine naturally. In other respects, too, I am quite well."

The prostate, which weighs $2\frac{1}{2}$ ounces, is an excellent specimen of symmetrical adenomatous enlargement of the organ. The case is a remarkable one from many points of view, but particularly in regard to the masked character of the prostatic symptoms. There were really no external signs or symptoms to indicate prostatic mischief, as, though there was a large quantity of residual urine, this did not give rise to the usual symptoms of frequency of micturition till the patient took to bed. It has to be noted that there was profuse haemorrhage from the prostate long before a catheter was employed, due, no doubt, to a varicose condition of its veins.

CASE 105.—Gentleman, aged seventy-one, sent by Dr. A. Emson, Dorchester, consulted me June 6, 1904. Symptoms only dated from ten months previously, when he had retention, relieved by catheter, which was used twice daily for a fortnight. After this urine passed naturally, and patient remained fairly well till six weeks previously, when retention again occurred. Catheter passed occasionally since then ; haemorrhage and much pain from catheter ; micturition every two hours ; residual urine 12 ounces ; contained much pus and blood ; general health very bad ; pulse irregular and intermittent. Prostate scarcely felt enlarged *per rectum*, but an enormous mass palpable bimanually, and cystoscopic examination revealed an enormous outgrowth in the bladder.

On June 13, assisted by Dr. Emson, Dr. Guthrie, Stirling, being also present, I enucleated the prostate (weighing $10\frac{1}{2}$ ounces) entire in its capsule. On opening the bladder suprapubically its cavity was found filled by an enormously enlarged prostate, with an irregular gaping urethral orifice, overhung above and on the left by a massive overgrowth of the left lobe (Fig. 43, A), and on the right by a large mass projecting from the right lobe (B), behind which was an ovoid polypoid outgrowth (C). The right and left lobes were separated by a deep, gaping fissure. The prostate, which was almost entirely intravesical, was easily enucleated

entire, the lobes opening out posteriorly, but remaining united in front by a broad band (D). There was considerable bleeding which, however, soon ceased; operation borne well. There was some secondary haemorrhage on June 23, and again on June 26, but the patient steadily improved; began to pass urine naturally July 3, and in volume July 10; wound closed July 12; sitting up daily for a week previously; drove out

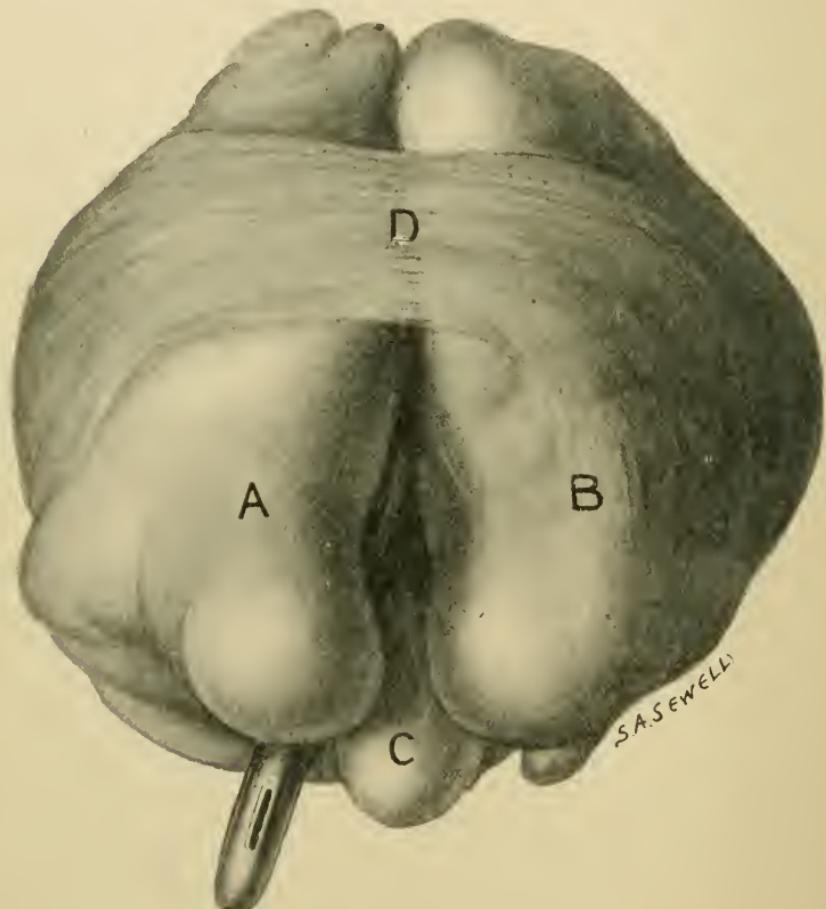


FIG. 43.—PROSTATE, WEIGHING $10\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-ONE (CASE 105). ACTUAL SIZE.

A, Left lobe; B, right lobe; C, polypoid outgrowth from right lobe; D, thin band of sheath removed with prostate.

daily after July 12; went home July 21, in fairly good health, untroubled by any urinary symptom. On March 7, 1906, he writes: 'I am quite myself again, and can get about easily; free from pain, and retain and pass urine as well as ever.'

The extremely feeble condition of this patient gave cause for considerable anxiety, especially as the kidneys were undoubtedly much affected ; and the complete recovery is remarkable, taking this fact and the enormous size of the prostate into consideration.

The short duration of the symptoms, and the patient's not being reduced to dependence on the catheter, are also very singular facts, considering the great size of the prostate. These circumstances I attribute to the enlarged prostate being almost entirely intravesical, so that the lobes were not bound down by the recto-vesical fascia, and lateral pressure on the urethra was thus obviated to a large extent.

What a strange contrast this case presents to others that I have recorded, in which comparatively slight enlargements of the gland, weighing from $\frac{3}{4}$ ounce to 1 ounce, caused complete retention and dependence on the catheter, owing, I believe, to their being compressed by some peculiar formation of the recto-vesical fascia, which does not allow of free expansion of the prostate.

CASE 129.—Gentleman, aged seventy-eight, seen with Dr. W. C. Luffman, London, September 15, 1904. Prostatic symptoms for ten years, much aggravated during last two. Completely dependent on catheter for seven weeks. Haemorrhage, cystitis, with rigors, and temperature 104° F. from time to time. Patient very stout and feeble, suffering from chronic bronchitis. Much pus and mucus in urine, specific gravity 1012. Prostate scarcely felt enlarged *per rectum*, but bimanual examination revealed its size as that of a large orange projecting into the bladder, very soft and movable.

The patient's general health being improved, on October 3 I enucleated the prostate entire in its capsule, Major J. G. Gordon, I.M.S., and Dr. J. A. Potts, Ross, Hereford, being present. I also removed an oxalate of lime calculus weighing 34 grains from the bladder. Time occupied, six minutes. Troubled much with bronchitis for a few days after operation, but strength gradually improved. Some urine passed naturally October 15 ; wound dry October 18. Went home perfectly well November 5 ; able to pass and retain urine as well as ever. On October 17, 1905, he called to see me, in excellent health. Could retain urine four or five hours by day, and six or seven by night, and pass it with perfect ease ; in fact, better than he ever did previously. On March 6, 1906, the patient wrote : 'I am quite well, and it is quite as easy for me to retain or pass urine as ever during my life, or as anyone ever need to ; and the urine has been clear ever since my leaving the nursing home.'

The prostate, which weighs $5\frac{1}{4}$ ounces, had several polypoid outgrowths in the bladder from the right lobe, which is twice the size of the left.

There is a further form of enlargement of the prostate, which is partly adenomatous and partly inflammatory, occasionally met with, in which the patient becomes entirely dependent on the catheter, though the prostatic enlargement has not attained to any considerable dimensions. These are the cases in which, during an attack of cystitis, resulting from chill or other cause, the inflammation extends to the incipiently enlarged prostate, resulting in retention of urine. A catheter is passed for relief of this retention, and not unfrequently the obstruction remains a permanent bar to natural evacuation of the urine. These are the cases, I presume, that are commonly spoken of as instances of 'fibroid' prostate. They are capable of being removed entire, if well defined, or projecting into the bladder. But one cannot assure the patient beforehand of a perfect result, as in ordinary adenomatous enlargement of the prostate of advanced age, for in some of these cases the bladder never regains the power of completely emptying its contents naturally, there being a certain quantity of residual urine left behind. Fortunately, such cases are rare.

LECTURE VI

I.—TOTAL ENUCLEATION OF THE PROSTATE IN ADVANCED OLD AGE

ONE of the most remarkable features of the operation of total enucleation of the prostate is the success that has attended its employment in advanced old age. Amongst some 300 patients on whom I have performed the operation there were 19 octogenarians, varying in age from eighty to eighty-seven years, and 3 bordering on this period of life, aged seventy-nine years, in all of whom, except two, the results have been completely satisfactory. In one of the fatal cases there was malignant disease of the bladder, though the prostate was adenomatous apparently; in the other the case was complicated by vesical stone of twelve years duration and disease of the kidneys. It would thus appear that age has little influence on the result of the operation provided that the vital organs, and particularly the kidneys, are unaffected or fairly sound. Nevertheless, patients of this advanced age cause much anxiety; and the operation should not be undertaken in such cases unless the most careful and tender nursing is available, as well as the constant personal supervision of the surgeon. I will give details of several of these cases, as they are most interesting.

CASE 46.—A well-known public man, aged eighty-one, seen in consultation with Dr. H. L. Macevoy, Brondesbury, May 3, 1903. Prostatic symptoms for ten years, gradually increasing in severity. Retention of

urine four years previously, relieved by catheter, which has been employed ever since. Great frequency of micturition, intense pain at times, and haematuria. Seen from time to time by various London surgeons. Double vasectomy in 1900, but with no relief. Condition extremely miserable during last six months. I drew off 8 ounces residual urine containing much pus and blood; difficulty in introducing the catheter. Prostate enormously enlarged *per rectum*, soft, tense, and movable. Cystoscopy on May 4 revealed an outgrowth of the left lobe of the prostate in the bladder, the size of a plum. Patient in very feeble health and confined to bed.

On May 13, Mr. C. Braine being the anaesthetist, Mr. Thomson Walker and Dr. Macevoy assisting, and Colonel W. H. Henderson, I.M.S., being present, I removed the prostate entire in its capsule, the urethra being left behind. Some trouble was experienced in the enucleation, owing to stoutness of the patient, the finger with difficulty reaching the aspect of the gland towards the triangular ligament. Time occupied from commencing the suprapubic wound till the prostate was delivered from the bladder, thirteen minutes. There was very little bleeding and no shock.

Uneventful recovery, the temperature remaining normal throughout. Some urine passed naturally June 2, and wholly in this way June 5. Patient went home June 8, twenty-six days after operation, retaining and passing his urine naturally, and he is now in excellent health, untroubled by any urinary symptoms. On May 29, 1906, three years after operation, he writes: 'I am pleased to tell you I have no trouble whatever with passing my water, thanks to your treatment, and I feel very well otherwise.'

The prostate (Fig. 44), which weighs $5\frac{1}{4}$ ounces, is an excellent specimen of almost symmetrical adenomatous enlargement of that organ.

CASE 67.—Gentleman, aged eighty-one years, was seen with Mr. C. T. Knox Shaw on October 29, 1903. Prostatic symptoms had been present for thirty years and gradually increasing. The catheter had been passed in June 1901, showing 13 ounces of residual urine. Cystitis supervened in August, with much pus in the urine and rigors. The catheter was passed five or six times daily in November, 1902. The sound was passed under an anaesthetic in July, 1903, by another surgeon, but no stone was found. The patient had been entirely dependent on the catheter since then, with much pain and occasional bleeding. His general health was bad. The prostate was greatly enlarged *per rectum*; it was broad, soft, nodular, and movable.

On November 19, Mr. Shaw and Colonel C. Little, I.M.S., being present, I removed the prostate entire in its capsule with several small

calculi from the bladder. There was considerable bleeding, and the patient was feeble for some days after the operation. By the 29th the suprapubic wound had closed so rapidly that it was necessary to reinsert a small tube to prevent spasm of the bladder. This was removed on December 6, and on the same day the patient began to pass urine naturally. The wound was closed on the 11th. On the 16th he went out for a walk. He is now, $2\frac{1}{2}$ years after operation, in good health and able to retain and to pass his urine naturally. On May 9, 1906, he writes:

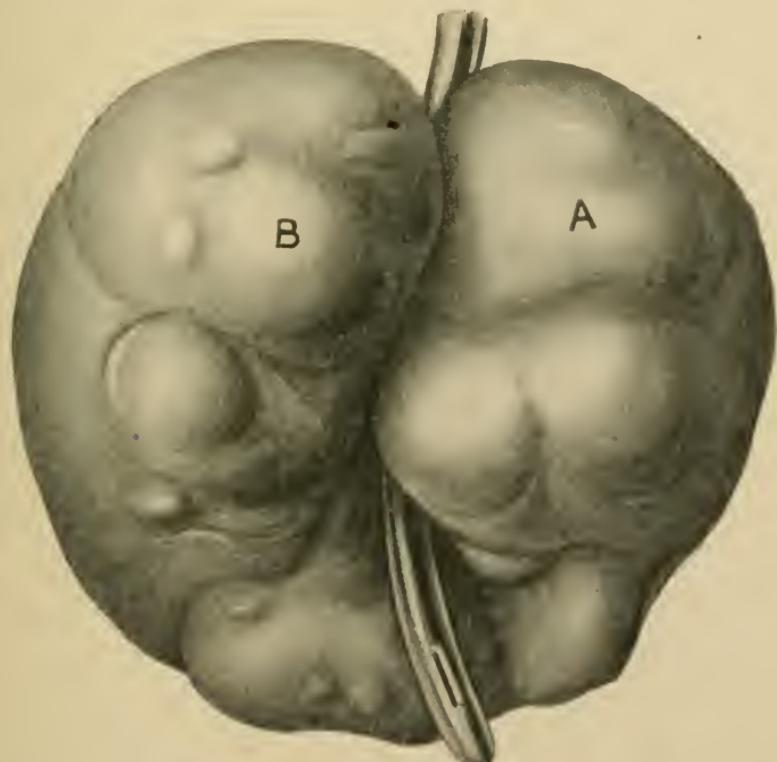


FIG. 44.—PROSTATE, WEIGHING $5\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-ONE (CASE 46).

A, Right lobe; B, left lobe. Catheter lies in position occupied by urethra.

I have had no appreciable trouble with my waterworks since the operation in November, 1903. I have never, from that date, had occasion to be otherwise than grateful to you for the comfort thus acquired, and, happily, since maintained.'

The prostate (Fig. 45) weighs $4\frac{1}{2}$ ounces, and is irregularly enlarged and bossy, the left lobe having been more prominent in the bladder than the right.

CASE 70.—Captain M—, aged eighty-seven years, was seen with Dr. H. E. Bruce Porter, of Windsor, on November 22, 1903. Prostatic symptoms had been present for eight years. The catheter had been employed for six years, and the patient had been entirely dependent thereon for five years; it was passed every two hours. The urine contained much blood and ropy muco-pus; it was alkaline and fetid. The catheter passed in $13\frac{1}{2}$ inches before the urine flowed; a stone could be felt grating against its end. The prostate was enormously

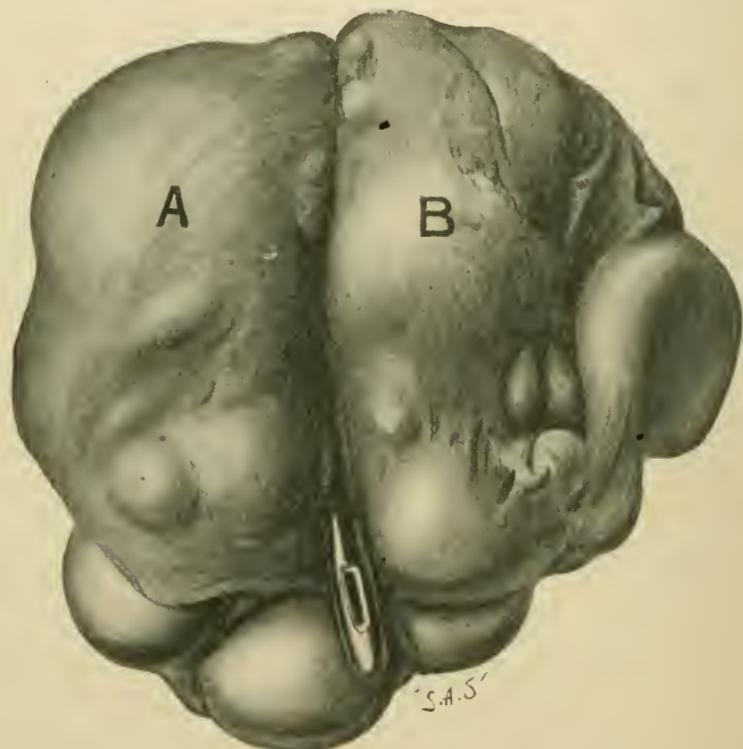


FIG. 45.—PROSTATE, WEIGHING $4\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-ONE (CASE 67).

A, Left lobe; B, right lobe.

enlarged *per rectum*; it was roundly bilobed, smooth, soft, and movable. The patient was emaciated, bearing the impress of terrible suffering. 'Life not worth living under present condition,' as he put it; morphine was given daily to mitigate the pain. He had an intermittent and irregular pulse; the arteries stood out like whipcords all over his body. Rigors and fever occurred periodically. He came to London on November 27, and his bladder was washed out twice daily. On December 4,

Mr. C. Braine being the anæsthetist and Dr. Porter assisting, I opened the bladder suprapubically, and found two phosphatic stones, which were removed ; they weighed $2\frac{1}{2}$ drachms. Both ureters were dilated to such an extent that the index-finger passed readily into them. The prostate was felt to be of the size and shape of a cricket-ball, and was jammed beneath the pubic arch, half of it lying in the bladder and half outside. It was enucleated entire in its capsule. Much force was required to

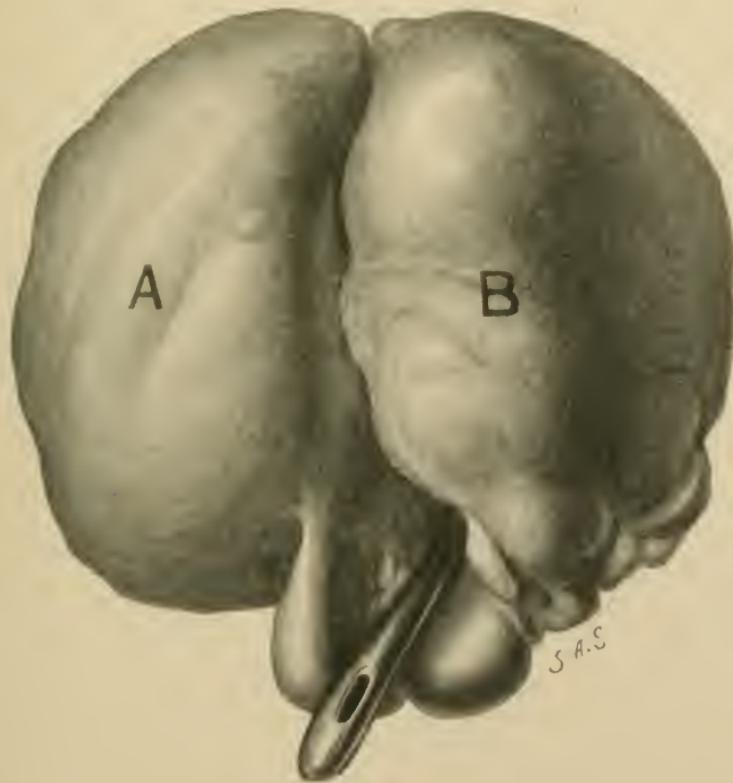


FIG. 46.—PROSTATE, WEIGHING $6\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-SEVEN (CASE 70).

A, Left lobe ; B, right lobe. Each showing an outgrowth in the bladder.

separate it from the surrounding sheath. The time from commencing the suprapubic cystotomy till the prostate was delivered from the bladder was seven minutes. There was scarcely any bleeding or shock. The drainage-tube was removed on December 7. There was not an unfavourable symptom. No morphine had been given since the operation. 'Talk of the pains of an operation,' said the patient ; 'the last four days have been holidays from pain amongst many years.' He sat up daily

after December 16. He passed urine naturally by December 20. The wound was dry on the 23rd, and the patient was walking about. On January 2, 1904, he travelled home in good health and spirits, passing and retaining his urine naturally. He stated that he felt twenty years younger than his age—a truly grand old soldier who was present in the Sutlej and Burmese Wars of 1845 and 1852. On May 11, 1904, his wife wrote : 'He is now enjoying life free from any pain and discomfort.' On September 8, 1905, Dr. Bruce Porter wrote : 'Our poor old mutual patient, Captain M—, died of old age. From the time you did your operation on him his life was a new one. He at once passed from absolute torture to absolute comfort. He was in mind and body years younger. After nearly two years of comfortable life, subsequent to operation, his circulation failed. His vessels were, as you know, like pipe-stems.'

The prostate (Fig. 46), which weighs $6\frac{1}{4}$ ounces, is a fine specimen of symmetrical enlargement with a small outgrowth in the form of a lip below the orifice of the urethra.

This is one of the two oldest patients on whom I have performed this operation, and I submit that the result was a great surgical triumph considering his age, the large size of the prostate, the weak state of the patient, the presence of chronic cystitis with formation of phosphatic calculi, the dilated condition of the ureters from backward pressure, indicating a probability that the kidneys were much diseased. In spite of all this, there was complete restoration to health and function of the bladder.

CASE 85.—Gentleman, aged eighty-two years, was seen with Mr. J. L. Hewer, of Highbury New Park, on March 2, 1904. Prostatic symptoms had been present for twenty years, and the patient had been entirely dependent on the catheter for ten years. He experienced great difficulty and pain in introducing the catheter latterly, two hours being frequently spent in manipulating the instrument before it passed. He had had frequent attacks of cystitis, haemorrhage, and orchitis, and had undergone seven operations for vesical calculus. He had inguinal hernia requiring a truss. The prostate was much enlarged, soft, tense, and movable ; it could be felt bimanually. The urine contained pus and mucus.

On March 7 I removed the prostate entire in its capsule, Mr. Hewer assisting. The time occupied was six minutes. The operation was well borne. Recovery supervened without any unfavourable symptom, the temperature remaining normal throughout. Urine passed naturally on the 23rd, and the wound was dry on the 25th, eighteen days after operation. The patient is now in excellent health, attending to his business daily. On July 19, 1904, he wrote to me : 'The result of your operation has been entirely satisfactory. I am now able to pass and retain the urine as well as I ever did.' And on March 26, 1906 : 'Yesterday I entered

my eighty-fifth year, and am glad to say I am enjoying the best of health.'

The prostate (Fig. 47), which weighs $5\frac{1}{4}$ ounces, presented a large tongue-shaped outgrowth in the bladder growing from the right lobe. The rapidity with which the wound closed is remarkable in a patient aged eighty-two years.

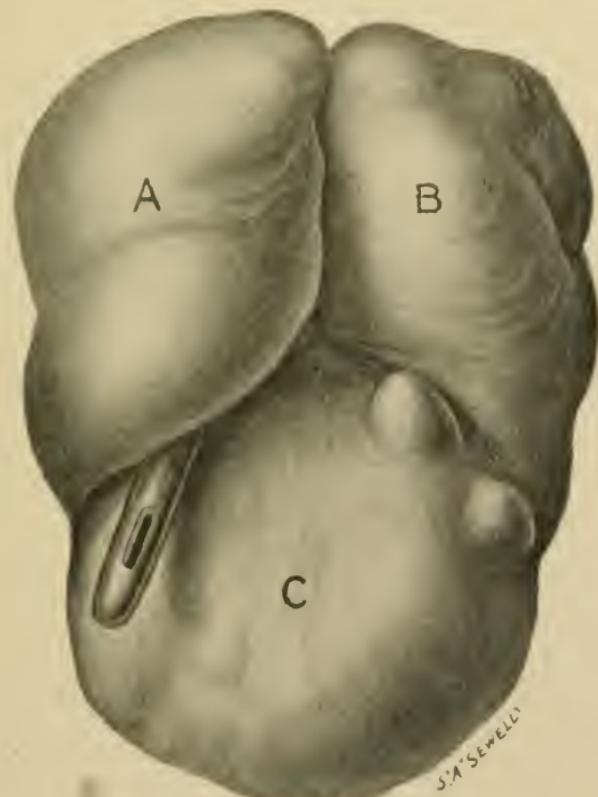


FIG. 47.—PROSTATE, WEIGHING $5\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-TWO (CASE 85).

A, Left lobe; B, right lobe, presenting a tongue-shaped outgrowth, C, in the bladder.

" CASE 96.—Eminent scientist, aged eighty-one years, was seen with Mr. H. Huxley on February 17, 1904. Prostatic symptoms had been present for five years. The patient was in great distress with an over-distended bladder. I passed a catheter and drew off 55 ounces of fairly clear urine. The prostate was much enlarged, rounded, smooth, and movable. His general health was good. He passed some urine naturally for a few days, but eventually he was completely dependent on the

catheter. He was seen again with Mr. Huxley on May 3, when he travelled to London for operation, as catheter life was unbearable. His health was bad, and he was very feeble. Rapid loss of flesh had taken place during the last two months.

I enucleated the prostate on May 6. The gland was scarcely prominent in the bladder; it was firmly bound down by its sheath. There was

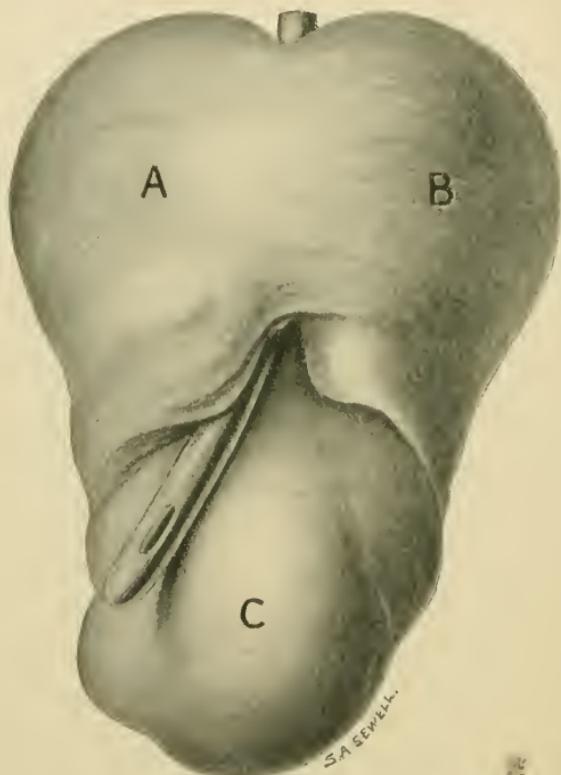


FIG. 48.—PROSTATE, WEIGHING 4 OUNCES, REMOVED FROM PATIENT AGED EIGHTY-TWO (CASE 124).

A, Left lobe; B, right lobe, prolonged into bladder in polypoid form, C.

hardly any bleeding. The prostate weighed $2\frac{1}{2}$ ounces. Progress was most favourable till May 10, when a severe attack of gout set in, followed by severe inflammation of the parotid glands, which, however, did not suppurate. Though the wound kept clean throughout progress was slow, owing to the weak state of health. Urine was passed naturally by June 2, and entirely *per urethram* by the 11th. The patient left the surgical home on the 16th, and on the next day the suprapubic wound reopened. A catheter was tied in till the wound closed again. I met this gentleman

on December 14, 1905, nineteen months after operation, and he was in excellent health. He can pass and retain his urine normally.

CASE 124.—Gentleman, aged eighty-two, seen with Dr. Randell, Beckenham, August, 10, 1904. Catheter employed for prostatic obstruction eight years, latterly four times daily, a little urine being passed naturally every two hours with much straining. Hæmorrhage, cystitis, and orchitis from time to time. Catheter introduced with difficulty. Prostate greatly enlarged *per rectum*, bilobed, soft, smooth, movable; felt bimanually, the size of a large orange. Health feeble. Inguinal hernia requiring a truss.

On September 15, Mr. C. Braine being the anæsthetist, Dr. Randell assisting, Drs. de Havilland Hall (London) and Renny (Colchester) being present, I enucleated the prostate entire in its capsule easily and rapidly in four minutes. Very little bleeding; no shock. The recovery was uninterrupted, urine passing naturally October 12, and the wound being dry next day, after which it did not reopen. Seen by Dr. de Havilland Hall September 23, in excellent health, able to pass and retain urine as well as he ever did. Left for home on September 24. On January 26, 1905, he wrote: 'I am quite well, and as active as ever;' and on September 15, 1905: 'It is a year to-day since I was in your hands for the operation, which in my case, as in many others, has proved a very real blessing. I can look forward without anxiety to what remains of life. I have never touched a catheter since the operation.'

The prostate (Fig. 48), which weighs 4 ounces, presented an outgrowth in the bladder the size of a large plum, growing from the right lobe.

CASE 155.—Colonel S—, aged eighty-three, seen with Dr. J. C. Ferrier, S. Norwood, December 8, 1904. Had prostatic symptoms six years; much aggravated the last two years. Retention of urine fifteen days previously; entirely dependent on the catheter for ten days. Much pain and difficulty in introducing catheter; in great distress from cystitis; attempting to pass urine every few minutes. Prostate enlarged, bilobed, tense, movable; felt bimanually. Patient stout, general health fair, pus and albumin in urine.

On December 10 patient was conveyed to London in an ambulance. After washing out the bladder daily and preparing him for operation, on December 20, Dr. Ferrier assisting and Mr. C. Braine being the anæsthetist, I opened the bladder suprapubically, removed a small urate stone weighing 39 grains, and then enucleated the prostate entire (weight, 2 $\frac{1}{2}$ ounces). Time occupied, five minutes. Very little bleeding; no shock. No unfavourable symptoms supervened. Urine commenced to pass naturally January 9, 1905; wound closed January 12. On January 16 he was walking about his room, and on January 25, when he left for home,

he was in good health, passing and retaining his urine as well as ever he did. On January 28 Dr. Ferrier wrote: 'I am exceedingly pleased to see how well a man of his age has done after your operation.' On May 9, 1906, the patient wrote that, though his general health was feeble, there has been no return of the urinary symptoms since his operation.

CASE 160.—Gentleman, aged eighty, sent by Dr. A. M. Mitchell, Guildford, January 11, 1905. Prostatic symptoms four years. Retention one and three quarter years ago, relieved by catheter, which has been regularly employed since then; entirely dependent thereon for one year. Cystitis, haemorrhages, intense pain in penis during and after using catheter. Urine alkaline; much pus and mucus. Has been in bed seven weeks, and was so feeble that he had to be conveyed from Guildford to London in an ambulance. Heart very weak; pulse intermittent and irregular. Prostate bilaterally enlarged, soft, tense, movable; much pain and tenderness during examination, due probably to presence of vesical calculi. Condition of patient very distressing; catheter introduced with much pain and difficulty.

On January 16, Dr. Mitchell assisting, I opened the bladder suprapublically and found four phosphatic calculi, weighing 185 grains, which were removed. The prostate projected into the bladder in the shape of an enormously hypertrophied cervix uteri with wide, irregular os. The prostate was enucleated entire without difficulty, and weighed $2\frac{1}{2}$ ounces. Time eight minutes, four of which were expended in removing the calculi. Operation well borne; no shock.

Progress was very satisfactory, the patient regaining strength rapidly. Some urine was passed naturally January 24, and entirely in this way after February 6. On February 28 he went home in good health, passing and retaining his urine, which was quite clear, normally. On May 9, 1906, he wrote: 'I can pass urine as well as I ever could, and also retain it as well, with some very rare and trifling exceptions.'

CASE 174.—Eminent scientist, aged eighty-two, seen in consultation with Mr. G. H. Makins and Dr. E. A. Roberts, London, March 25, 1905. He had suffered for fifteen years from prostatic symptoms, the most pronounced of which was gradually increasing frequency of micturition. A catheter had been passed on March 23 and $1\frac{1}{2}$ pints of urine drawn off. Next day the temperature rose to 101° F., and there was much difficulty in passing the catheter. I introduced a coudée No. 8 with some difficulty, and drew off 15 ounces of thick urine containing pus and mucus; specific gravity low. The prostate *per rectum* was much enlarged, broadly bilobed, smooth, soft, movable; felt bimanually. Patient thin but wiry; high-tension pulse. Bowels moved when he strained to pass urine. Obtained scarcely any sleep from constant desire to pass water. The case was regarded as one very suitable for removal of the prostate; but,

as the patient was suffering from acute septic absorption from the bladder, we considered that it would be advisable to postpone operation, if possible, till this condition should have passed off. But the difficulty and pain attending the introduction of the catheter decided us on fixing the operation for March 28. On March 26, however, the temperature rose to 102° F., and this was accompanied by nausea, vomiting, loss of appetite, drowsiness, and scanty secretion of urine ; there was, in short, partial suppression of urine. Under these circumstances we decided to postpone operation for the time, lest the shock attending it might cause complete suppression of urine. The patient was extremely disappointed at the postponement, became much depressed, and his strength began rapidly to fail. We consequently decided that the proper course was to risk operation, the extreme gravity of the situation being fully placed before his relatives.

On March 29, in consultation with Mr. Makins and Dr. Roberts, Dr. Hewitt being the anaesthetist, I removed the prostate, both lobes of which were very prominent in the bladder. The enucleation was easily accomplished, the time occupied from commencing the suprapubic incision till the prostate was delivered from the bladder being six minutes. There was scarcely any bleeding and no apparent shock. But there was much nausea and vomiting for some days, and on March 31 the patient brought up some altered blood from the stomach ; next day there was blood and mucus in the stool after a dose of castor-oil. At this period we had the advice of Sir Thomas Barlow in consultation. These symptoms were regarded as uræmic in origin. After the bowels were opened there was a profuse discharge of urine in the dressings, so that the functions of the kidneys were re-established. From this period onwards the patient made sure, though slow, progress towards recovery. Though the wound kept perfectly clean throughout, the temperature did not sink to normal for a fortnight, till, in fact, the septic poison that was absorbed before operation had been eliminated from the system.

On April 22, on inserting the nozzle of the irrigator in the suprapubic wound and filling the bladder, the lotion was passed *per urethram* in a continuous stream. On April 26, 8 ounces of urine were passed naturally. The wound was dry on May 1 and 2, and all urine was passed naturally ; but it reopened on May 3. On May 7 a rubber catheter was tied in, and kept there till May 14, all urine being passed by this means.

The catheter was removed on May 14th, when the suprapubic wound was thoroughly healed, and all the urine subsequently was passed naturally. The patient is now—more than a year after operation—in excellent health, able to pass and retain his urine as well as ever he did, and leading an extremely active life.

The prostate (Fig. 49), which weighs 2 $\frac{3}{4}$ ounces, is symmetrically

enlarged, each of the lateral lobes presenting a pedunculated outgrowth in the bladder the size of a cherry.

CASE 187.—On August 3, 1904, I was summoned to Colchester to see, in consultation with Dr. E. G. Renny, a gentleman, aged eighty-six, who had been suffering from prostatic symptoms for five years. The catheter had been used off and on for six months. I drew off 16 ounces residual urine, turbid but acid. The prostate was much enlarged *per rectum*,

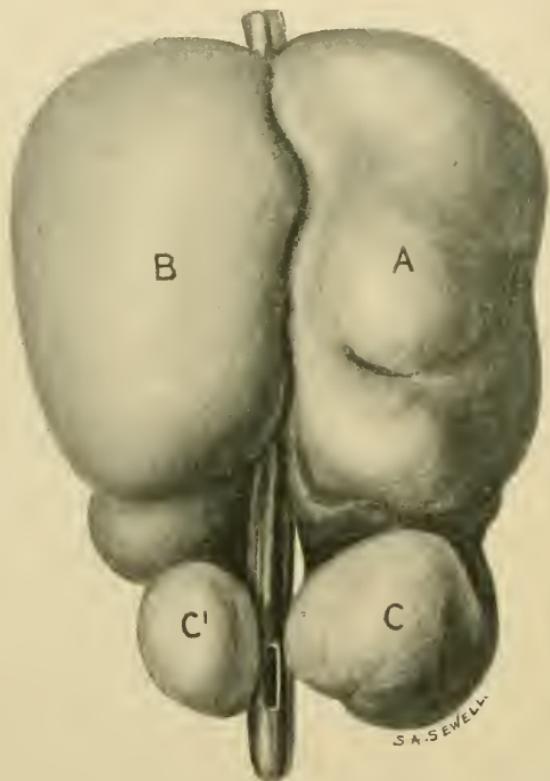


FIG. 49.—PROSTATE WEIGHING $2\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-TWO (CASE 174).

A, Right lobe ; B, left lobe : C, C', pedunculated outgrowths in bladder.

bilobed, smooth, movable, and bimanually was felt the size and shape of a medium-sized pear, with the apex in the bladder. Patient's general health was good, and the case was regarded as a very suitable one for operation ; but as he was not inclined for this, I advised the catheter being employed three or four times daily. I was again consulted on May 15, 1905. All the urine had been passed by catheter since August, 1904. Patient was now in great distress, having to pass the catheter every half

to one hour night and day, with resulting loss of sleep. He had lost ground decidedly during the last six months ; his general health was broken ; heart irregular and intermittent ; both the lower limbs oedematous. Had recently suffered from phlebitis of left thigh. Urine acid, specific gravity 1012, contained pus and albumin. The case was, therefore, a very grave one ; but, as the patient had come to the end of his tether as far as the catheter went, I determined to operate.

Consequently, on May 22, Mr. C. Braine being the anæsthetist, Dr. Renny assisting, and Colonel J. Moorhead, I.M.S., being present, I enucleated the prostate entire, easily and rapidly, the time being five minutes. On commencing the suprapubic incision, the pulse and breathing ceased, and artificial respiration had to be adopted ; but I proceeded with the operation, and the enucleation of the prostate seemed to stimulate breathing. There was scarcely any bleeding, and after the operation the pulse was stronger and more regular than before. The prostate was pear-shaped, symmetrically enlarged, one half of it lying in the bladder, and weighed $3\frac{1}{2}$ ounces. No unfavourable symptom supervened till May 30, when the temperature rose to 102 F., due to an attack of bronchitis, which, however, gradually subsided in a fortnight. The wound was perfectly clean and healthy throughout, but the fistula was very slow in closing, owing to the feeble health of the patient. Began to pass urine *per urethram* June 30 ; wound closed July 9, and the whole of the urine passed naturally. On May 9, 1906, about a year after operation, he wrote : 'I am also glad to say that the urinary organs are now quite sound, and I can pass and retain water as well as ever.'

CASE 194.—Gentleman, aged eighty-seven, seen in consultation with Dr. H. Roger Smith, Hampstead, May 31, 1905. Bladder symptoms for seven years. Stone crushed by another surgeon five years ago. Since then has had to use the catheter, at first once daily, gradually increasing in frequency till he now passes it six times daily. Passes a little urine naturally, accompanied by much pain and spasm. Urine alkaline, fetid, contains much pus and mucus. Has passed blood frequently. Patient's condition most distressing ; feels, as he says, that he can no longer go on with the catheter. Prostate much enlarged *per rectum*, bilobed, soft, smooth, movable, felt bimanually. General health fair, but troubled with bronchial catarrh. Suffering from double inguinal hernia and double hydrocele.

On June 6, Mr. C. Braine being anæsthetist, Mr. Thomson Walker and Dr. Roger Smith assisting, I enucleated the prostate entire in its capsule easily and rapidly. There was a small phosphatic stone, weighing 23 grains, found in the bladder. Time occupied, including removal of calculus, five minutes. The prostate was the size of a large Tangerine orange, almost symmetrical, and weighed 2 ounces. There was scarcely

any bleeding, and no shock. The recovery was unaccompanied by any unfavourable symptoms, the temperature remaining practically normal throughout. In fact, the patient scarcely felt the operation in any way. He passed urine naturally June 20, and the wound was dry July 1.

After July 3 he sat up daily and walked about his room. The ease with which the operation was borne, and the rapidity of convalescence are extremely remarkable at this great age. On May 10, 1906, he wrote: 'My waterworks are in excellent working order, and have been so ever since I was under your care. Every time I pass water I feel grateful for the ease and comfort I now enjoy compared with the misery of my life when I put myself under your most skilful operation.'

CASE 268.—Gentleman, aged eighty-three, seen at Reigate in consultation with Dr. H. S. Stone, February 1, 1906. Prostatic symptoms for twenty years, much aggravated during the last five. Renal colic twelve years previously. Fifteen days ago catheter passed by another medical man followed by bleeding. Retention of urine a week ago. Difficulty in introducing catheter, so an anaesthetic was given and a catheter tied in, urine very thick and offensive. Prostate greatly enlarged *per rectum*, bilobed, soft, movable; not felt bimanually, owing to extreme stoutness of patient.

As patient was rapidly losing ground, and could not tolerate the introduction of a catheter except under an anaesthetic, operation was decided on. On February 5, assisted by Dr. Stone, I opened the bladder suprapublically. The fat of the abdomen was 4 inches deep before the recti muscles were reached. Two large oxalate of lime calculi, weighing $1\frac{1}{2}$ ounces, were found lying behind the prostate and removed. The prostate was easily enucleable except that, owing to the patient being extremely stout and short in the trunk, its distal aspects were with difficulty reached by the finger. Time, twelve minutes, half of which was occupied in removing the calculi. The right lobe of the prostate, which weighed 5 ounces, was three times the bulk of the left. There was little bleeding, and the operation was well borne.

During the first two days the urine was scanty and devoid of its usual odour, and hiccup was very distressing, indicating uraemia. Then the functions of the kidneys were re-established, and satisfactory progress was made for about a week. But the patient, though bright and cheerful at times, and entirely free from pain, repeatedly said that he would not recover—that he had no desire to do so, as his course of life had run. He gradually passed into a comatose state, and died fifteen days after operation. No doubt the kidneys were much affected as the result of the putrid urine caused by the prostate and long-standing calculous disorder.

CASE 280.—Gentleman, aged eighty-four, seen in consultation with

Dr. P. L. Read, South Kensington, March 16, 1906. Prostatic symptoms dated from seventeen years ago, when he was advised by a surgeon to use a catheter. He dispensed with this till a year ago, when cystitis, accompanied by rigors and pyrexia, set in, and another surgeon was consulted. Catheter employed four or five times daily till three weeks

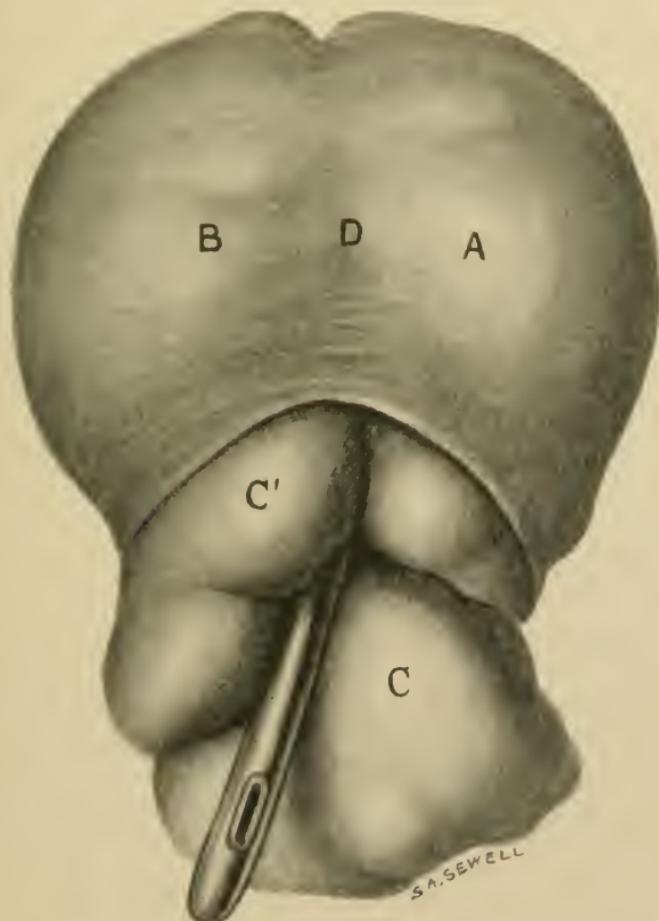


FIG. 50.—PROSTATE WEIGHING $7\frac{1}{2}$ OUNCES, REMOVED FROM PATIENT AGED EIGHTY-FOUR (CASE 280).

B, A, Thin layer of sheath attached; D, placed over anterior commissure; C, C', outgrowths of lateral lobes in bladder.

previously, when he had to give it up owing to the pain and difficulty in its introduction. Condition very distressful; great frequency of micturition day and night; bladder much distended. General health good. I passed a bicoudée catheter with difficulty and drew off 15 ounces

residual urine, thick with pus and mucus. Prostate greatly enlarged, bilobed, dense, movable; felt bimanually the size of a large orange.

On March 20, Dr. Read assisting, I enucleated the prostate (Fig. 50) entire, with a thin layer of the sheath adherent thereto, easily and rapidly, the time occupied being five minutes. The patient scarcely felt any inconvenience from the operation, and read the newspapers daily after the first day. Some urine passed naturally on April 8, and the wound was closed on April 11. He was sitting up out of bed on April 9, and went for a drive on April 15. Within four weeks from the date of operation he resumed business in the City, and is now in excellent health, untroubled by any urinary symptoms.

The prostate (Fig. 50) weighs $7\frac{1}{4}$ ounces. A thin layer of the sheath (B, A) came away with the prostate, being very adherent thereto. The letter D is placed over the line of the anterior commissure, marking the separation of the lateral lobes, which were continued as irregular projections (c, c') in the bladder, covered by the true capsule of the prostate.

II.—ENUCLEATION OF THE WHOLE OR REMAINING PORTIONS OF THE PROSTATE IN CASES PREVIOUSLY SUBJECTED TO OPERATION BY OTHER METHODS.

Numerous instances have been recorded in detail, in my published lectures and papers, of patients suffering from enlarged prostate who had been previously subjected to operation by other methods unsuccessfully, but who were completely cured by my method of total enucleation of the organ, or of the portions left behind in cases of partial prostatectomy. A collection and arrangement of these under their proper headings will prove both interesting and instructive.

1. Cases previously subjected to Castration.

CASE 43.—A gentleman, aged seventy-one, consulted me March 28, 1903, for prostatic troubles. Catheter employed for twenty years; not a drop of urine passed naturally for last eighteen years. Calculi removed by crushing on three occasions by London specialist; double castration by another London surgeon for cure of prostatic troubles in 1897, but without any amelioration of his symptoms. Slight paralytic stroke in

January, 1903, from which he completely recovered, but has had a nurse ever since. Extremely feeble and hysterical; breaks down and weeps without apparent cause. Patient's condition most pitiable. Haematuria from time to time. Urine contains much pus and blood, and is most offensive; bladder can retain only small quantity; hence catheter used half-hourly day and night. Enormous enlargement of prostate *per*

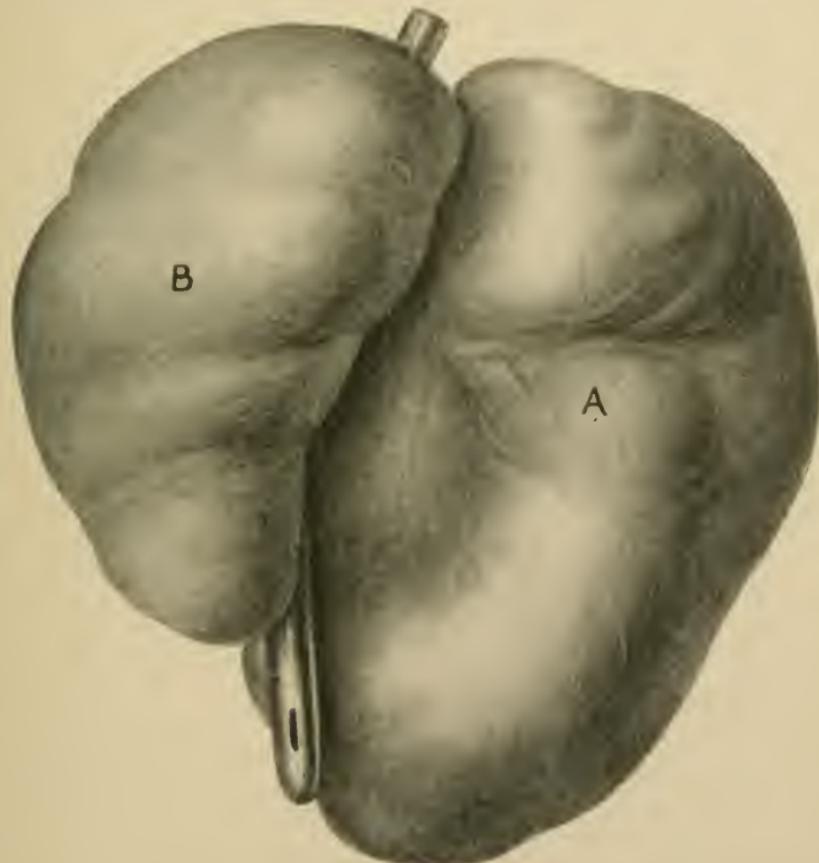


FIG. 51.—ENORMOUS PROSTATE, WEIGHING 8½ OUNCES, REMOVED FROM PATIENT AGED SEVENTY-ONE (CASE 43).

A, Right lobe; B, left lobe. The transverse groove indicates the boundary between the intravesical and extravesical portions.

rectum, soft, smooth, bilobed, movable. Cystoscopy on March 30 revealed an enormous outgrowth of prostate in the bladder.

On April 1, Mr. Wylie assisting, I enucleated the prostate entire in its capsule. The prostate projected into the bladder in the form of a cone, the urethral orifice being shaped like the crater of a volcano. Consider-

able force had to be employed to separate the capsule from the sheath. After delivery of the prostate as a whole into the bladder, owing to its large size, the lobes had to be separated to facilitate its removal, though it was very soft and spongy. Only eleven minutes elapsed from commencing the operation till the prostate was delivered from the bladder. There was scarcely any bleeding or shock. The patient made an uneventful recovery. Urine passed naturally April 26, and the wound was dry May 5. He was quite overcome with joy at passing urine naturally again after eighteen years of complete catheter life. Went home May 11, in excellent health, able to retain and pass his urine as well as ever he did. On March 14, 1906, nearly two years after operation, he writes : 'I am pleased to tell you that I pass urine quite freely, and retain it all right.'

The prostate (Fig. 51), which weighs $8\frac{1}{4}$ ounces, is a very large one. The right lobe (A) is enormously enlarged, the left lobe (B) less so. The case is, indeed, a remarkable one, showing what wonderful results may be accomplished by this operation even when the patient is almost moribund.

CASE 116.—Gentleman, aged sixty-two, came from Trinidad to consult me, on the advice of Dr. Eakin, Port of Spain, August 19, 1903. Prostatic symptoms eleven years. Double castration performed by a London surgeon in 1896 for cure of his disease, but with no benefit whatever. Completely dependent on the catheter six years; chronic cystitis; haemorrhage twice. Prostate size of a walnut, hard, movable; scarcely felt bimanually, as patient was very stout. I advised removal of the prostate; but the operation was postponed for a year, owing to pressure of business. On his return, in July, 1904, patient was in much the same state; catheter used five or six times daily; urine 'fishy' in odour, contained much pus and mucus.

With the assistance of Mr. Thomson Walker I enucleated the prostate, weighing $1\frac{1}{2}$ ounces, entire in its capsule, July 21, easily and rapidly. Urine began to pass naturally August 4, but the suprapubic wound was slow in completely closing. I saw him on September 23, previous to his departure for Trinidad. He was in excellent health, the wound firmly closed, and he could pass and retain urine as well as he ever did.

2. Cases previously subjected to Vasectomy.

CASE 19.—An eminent physician, aged sixty-six, with prostatic symptoms for ten years; the whole of the urine passed by catheter for three years; also suffering from diabetes. On entering on catheter life suffered from glycosuric urethritis, which resulted in stricture, rendering catheterism painful and difficult. In November, 1899, I dilated the stricture under an anaesthetic, since which time a large metal sound had

been passed periodically to keep the canal open. Double vasectomy in February, 1900, with no benefit to the prostatic symptoms, though it prevented the recurrence of orchitis resulting from the use of the catheter. I had the advantage of the advice of several distinguished members of our profession in this case, including Sir Dyce Duckworth, Mr. Reginald Harrison, Drs. Gilbart Smith and R. Hutchinson. The patient's condition was most distressing, and during the past year he repeatedly suggested removal of the prostate, but I postponed compliance with his wish till the symptoms became unbearable. The dangers of an operation of this kind in the diabetic state were fully laid before him; but at the final consultation he stated that death would be preferable to his sufferings from catheter life, so I yielded to his appeal for operation. Cystoscopy on June 18; 'middle' lobe prominent in bladder. Prostate *per rectum* globular, tense, smooth, movable.

On July 17, 1902, Mr. C. Braine, anæsthetist, and Drs. Gilbart Smith and Hugh Playfair being present, I removed the prostate suprapublically. It was found impossible to separate the lobes along their anterior commissure, so the gland was removed as a whole with the prostatic urethra. There was very little shock, though there was considerable oozing of blood for twenty-four hours. Recovery without any unfavourable symptom, the temperature remaining practically normal, some urine passing naturally at the end of the first week, and the suprapubic wound being completely closed on August 7. He drove out daily from August 9, and travelled to Scotland August 14—twenty-eight days after operation. He continued in excellent health, able to pass and retain his urine quite naturally till April 1903, when he sustained a stroke of paralysis from which he eventually died. On August 18, 1903, his wife wrote: 'What his helplessness would have meant, only for that operation, you and I alone know. His first words after his attack in Florence were, "Thank God for my operation."

This (Fig. 52) is the prostate, weighing 3 ounces. The so-called middle lobe (A) grows mainly from the left lobe (C). The whole is encircled by a thin fibrous and muscular band (B), part of the sheath formed by the recto-vesical fascia removed with the prostate. The lateral lobes (B, C) are seen covered by their true capsule.

I may say that this was one of the most anxious cases of my life, owing to the coexisting diabetes.

CASE 34.—Colonel M—, aged sixty-one, consulted me on January 9, 1903, on the advice of Dr. Guthrie Caley, Ealing. Prostatic symptoms for eleven years. Retention of urine in 1892; relieved by catheter by Dr. Simpson of Weymouth. Catheter employed continuously since then; urine passed entirely by catheter for last eight years. Frequent attacks of cystitis; passing blood since September, 1902. Vasectomy performed

in 1897 by a provincial surgeon: no improvement whatever therefrom. Prostate much enlarged *per rectum*, bilobed, soft, elastic, movable. Cystoscopy on January 14 revealed an enormous outgrowth of the right lobe, resembling a large tomato, in the bladder, and slight outgrowth of the left lobe. Patient went home and contracted influenza some days after, which left him very feeble.

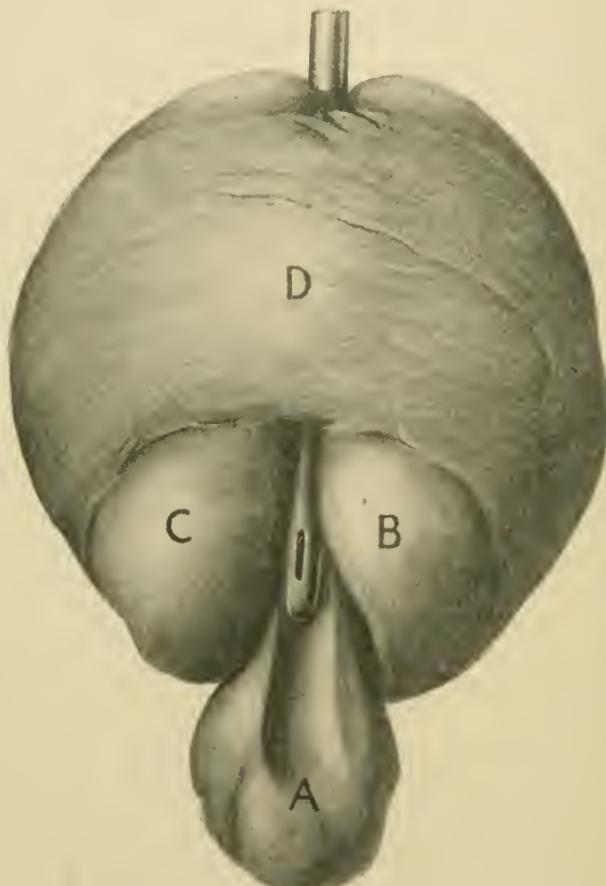


FIG. 52.—PROSTATE, WEIGHING 3 OUNCES, REMOVED FROM PATIENT AGED SIXTY-SIX (CASE 19).

A, 'Middle' lobe growing mainly from left lobe, C; D, fibro-muscular band from sheath removed with prostate, encircling lateral lobes, which are seen at C, B, covered by their true capsule.

He returned to London, and entered a surgical home on January 28, but was so feeble that I deferred operation. On February 11, Sir William Collins and Dr. A. Crombie being present, I removed the prostate easily

and rapidly, entire in its capsule, leaving the urethra behind uninjured. Some urine passed naturally February 25; wound closed March 3. Temperature normal throughout. Patient left for home in good health March 14, retaining and passing his urine as well as he ever did. On March 19, 1906, more than three years after operation, he wrote: 'I have been very well indeed, and have had no symptoms whatever of

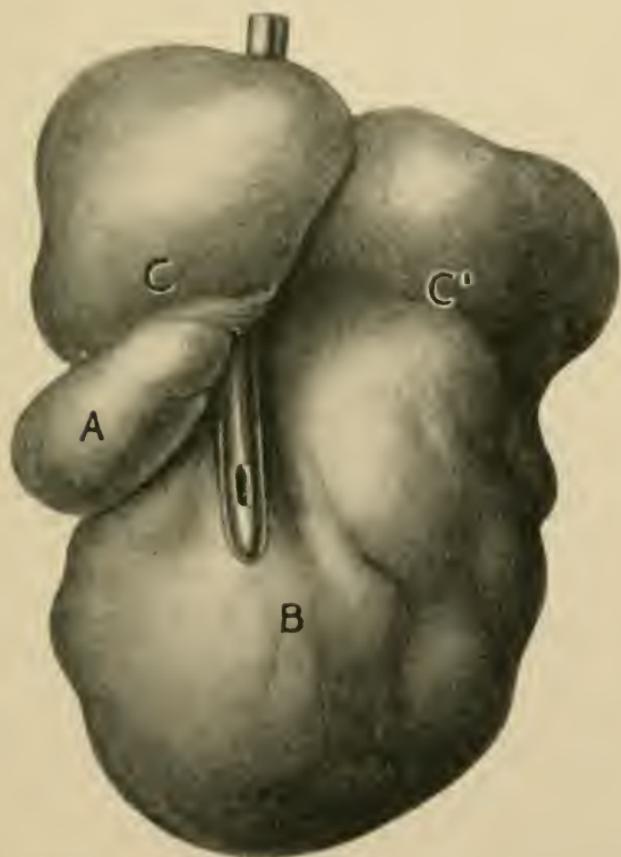


FIG. 53.—PROSTATE, WEIGHING $3\frac{3}{4}$ OUNCES, REMOVED FROM PATIENT AGED SIXTY-ONE (CASE 34).

B, Enormous outgrowth of right lobe in bladder; A, smaller growth of left; C, C', circular groove caused by constriction of recto-vesical fascia at neck of bladder.

bladder trouble of any kind. A perfect and uninterrupted flow of water when necessary. February 11, the anniversary of the wonderful operation, is kept as a sort of second birthday.'

The prostate (Fig. 53), which weighs $3\frac{3}{4}$ ounces, is a remarkable speci-

men of unsymmetrical growth. Three-fourths of its bulk lay in the bladder, the right lobe being enormously enlarged in this direction, and the left only slightly so.

CASE 45.—A member of the medical profession, aged sixty-one, with prostatic symptoms for four years. Retention two and a half years ago, relieved by catheter by Dr. Beaver, Sturminster Newton. Had double vasectomy performed by a well-known provincial surgeon; no relief therefrom. Practically the whole of the urine by catheter for eighteen months; several attacks of cystitis. Prostate decidedly enlarged *per rectum*, rounded, soft, tense, smooth, and movable. Cystoscopy on March 4 revealed well-marked outgrowths of both prostatic lobes in the bladder, particularly of the left.

On April 6, 1903, I removed the prostate entire in its capsule, the lobes opening out along their superior commissure, leaving the urethra uninjured. The patient was only twenty-three minutes on the operating table, and only seven minutes elapsed from commencing the suprapubic wound till the prostate was delivered from the bladder. Scarcely any bleeding or shock. Several ounces of urine were passed naturally during the first few days; then all the urine by the suprapubic wound for several days. The latter finally closed May 3. During the first ten days the wound was covered by much phosphatic grit, which required removal twice daily, and some grit was also passed *per urethram* with the urine. The patient left for the country May 5, in excellent health, able to retain and pass his urine naturally. I understand that he has recently read a paper on his own case at a branch meeting of the British Medical Association. On March 14, 1906, nearly three years after operation, he wrote: 'I can truly say I am quite well, pass an abundant stream and retain my urine as well as ever. I can go to bed at eleven o'clock and sleep till seven.'

The prostate is an excellent specimen of non-symmetrical enlargement, the left lobe being much more bulky than the right. It weighed 1 $\frac{3}{4}$ ounces.

CASE 78.—Medical man, aged fifty-nine, seen with Dr. G. S. Hart, Mesham, January 19, 1904. Prostatic symptoms ten years; sounded three years ago, but no stone was found. Profuse bleeding followed, and patient was laid up in a surgical home for six months, and became reduced to a skeleton; entirely dependent on catheter for three years. Double vasectomy by a London surgeon two and a half years ago with no improvement. Catheter used six or seven times daily; urine contained pus and albumin; catheter introduced 13 inches before urine flowed. Prostate much enlarged *per rectum*, bilobed, soft, movable; easily felt bimanually.

On January 27, Sir William Thomson of Dublin and Dr. Hart being

present, I removed the prostate, which weighed $4\frac{3}{4}$ ounces, entire in its capsule. There was an enormous outgrowth in the bladder, the size and shape of a large pear, springing from both lobes. Time occupied, five minutes. Much shock after operation, though no bleeding. After this, uninterrupted recovery. Urine passed *per urethram* February 9; wound dry next day. Went home in good health February 27; able to pass and retain urine 'better than ever before,' as he said. On March 16, 1906, he wrote: 'I have no troubles with the urine; I am not even disturbed at night. I consider the operation an inspiration, and the result a great blessing.'

CASE 100.—Gentleman, aged sixty-eight, consulted me March 17, 1904, on the advice of Dr. F. Rodgers, Cambridge, and Dr. W. Woollcombe, Plymouth. Catheter employed for six years, entirely dependent thereon for two years. Double vasectomy by another surgeon in 1901, with no relief, but followed by orchitis. Prostate enlarged *per rectum*, movable; felt bimanually. Urine kept fairly clear by washing bladder daily, but contained pus. Operation arranged for, but subsequently postponed owing to severe attack of pneumonia.

On May 25 I removed the prostate entire in its capsule, Dr. Woollcombe assisting, Colonels J. Moorehead and J. Anderson, I.M.S., and Dr. Deighton, Cambridge, being present. Thumb-like outgrowth from left lobe acting as a ball-valve to the urethral orifice. Weight of prostate, $1\frac{1}{4}$ ounces: time occupied, five and a half minutes. Urine passed naturally June 7; wound dry June 11. On June 21 he left the surgical home able to pass and retain urine as well as ever he did. On March 16, 1906, he wrote: 'I am extraordinarily well. Waterworks all right; in fact, I have never got cause to think about them, whereas for long years before I never thought of anything else.'

3. Cases previously operated on by McGill's Method of Partial Prostatectomy.

CASE 48.—Gentleman, aged sixty-two, consulted me May 25, 1903, on the advice of Dr. Vickers, Wellington, Salop. Prostatic symptoms for ten years, with recurrent haemorrhage during the last five. Profuse haemorrhage on July 13, 1902, followed by retention of urine, which was relieved by catheter. The haemorrhage recurring, and difficulty being experienced in introducing the catheter, on July 16 the bladder was opened suprapublically by a well-known provincial surgeon, who writes that he removed a 'middle lobe' lying over the inner orifice of the urethra, larger than a Tangerine orange. Owing to the weak condition of the patient, he did not consider it advisable to attempt total removal of the prostate. Convalescence was retarded by a large gluteal abscess, the suprapubic wound

taking some three months to heal. After five weeks the wound again broke down, the fistula remaining continuously open ever since. Patient in a very miserable condition, passing urine every hour by day and night, almost entirely by the fistula. Much pain, with periodical discharge of large quantities of pus, 'as if an abscess had burst,' as the patient described it. General health very bad; numerous unhealthy sores all over the body, due to absorption of septic matter. Prostate much enlarged *per rectum*, soft, tense, and more or less movable.

On June 2, Mr. C. Braine being the anaesthetist, I removed the remainder of the prostate, weighing $3\frac{1}{2}$ ounces. The operation was very prolonged ($1\frac{1}{4}$ hours). A very careful dissection was necessary to avoid opening the peritoneum, which was bound down to the scar. The hard scar tissue around the fistula rendered the abdominal wall unyielding, so that the finger with great difficulty reached the prostate. And, finally, the prostate itself was matted with the bladder walls and the enveloping sheath, so that great difficulty was experienced in its enucleation; indeed, it was removed in four separate pieces. There was, however, little bleeding, though the shock was severe and lasted for some hours.

With the exception of a bilious attack a week after operation, the patient made an uninterrupted recovery. He passed some urine naturally June 16, and the suprapubic wound was quite closed June 23. On July 12 he left for the seaside in excellent health, retaining and passing his urine naturally. On April 5, 1904, he wrote: 'I am still going on well, and am in excellent health,' in which state he remained till a short time before his death on November 23, 1905, from an abdominal operation. A relative wrote me on December 3, 1905: 'It (his death) had nothing to do with the old trouble at all; he had a twist in the bowel.'

This case presents a practical example of the unsatisfactory results attendant on McGill's operation, or partial prostatectomy; also of the difficulties that may be encountered in attempting subsequent removal of the main portion of the prostate which is left behind.

CASE 63.—On October 20, 1903, I was summoned to Birmingham to see, in consultation with Dr. M. Hallwright, a gentleman, aged sixty-six, who had suffered from prostatic symptoms for seven years, extremely distressing for the last three. Early in 1903 he became suddenly much worse, and a catheter was passed by a surgeon. This was followed by much constitutional disturbance and pyrexia, in consequence of which the catheter was not persisted in. In February he had continued pain, constant spasm with offensive urine. The physician then in charge found tube casts, and considered that pyelitis had set in. Complete retention on March 1, for which the bladder was opened suprapubically

by a well-known surgeon, and a prominent portion of the prostate in the bladder, weighing $\frac{3}{4}$ ounce, removed. Although relieved to some extent, patient was never free from bladder spasm, though suprapubic drainage was kept up, and after some months he drove out, wearing a urinal. No urine had passed naturally since the operation. Orchitis also supervened, and the straining and discomfort of the urinary apparatus became so wearing that complete removal of the prostate was contemplated. It was with this view that I was called in. I found the prostate considerably enlarged *per rectum*, bilobed, elastic, and movable, and I considered it one capable of being removed. The patient was of a nervous temperament, extremely thin and worn from his constant sufferings, but wiry.

For various reasons it was considered inadvisable to bring the patient to London, so on October 24 I operated at Birmingham—Dr. Haynes, anæsthetist, Dr. Hallwright assisting, and Dr. C. Nichols being present. Having opened up and enlarged the suprapubic fistula, I found the right lobe of the prostate somewhat prominent in the bladder, and the enucleation of this portion was quite easy. The left lobe, however, was matted by cicatricial tissue with the bladder, the result of the previous operation, and the enucleation of this portion was effected with considerable difficulty, much force being necessary to separate it from the surrounding tissues. Eventually the prostate, or, rather, what remained of it from the previous operation, came away in one mass, weighing $1\frac{1}{8}$ ounces. There was little bleeding or shock. I saw the patient with Dr. Hallwright several times during the ensuing three weeks. He continued to make favourable progress, though he had several rises of temperature. On November 15 patient passed $3\frac{1}{2}$ ounces of urine naturally, and on November 22 the wound was completely closed. On December 6 Dr. Hallwright wrote: 'The patient is better than he has been for years, and gains strength daily. He says the water is beautiful and takes no time in passing.' I have to acknowledge the devotion and skill with which the after-treatment was carried out by Dr. Hallwright, and which largely contributed to the successful result.

- This gentleman is now in excellent health, at the head of a great business. On December 20, 1905, he wrote: 'I am keeping very well, free from the trouble of which you relieved me.'

CASE 72.—H. P—, aged fifty-nine, admitted to St. Peter's Hospital December 5, 1903, with the usual symptoms of enlarged prostate. This patient had been operated on by another surgeon in April, 1901, by McGill's method, an enlarged 'middle lobe' of the prostate being removed. The suprapubic wound did not heal till January, 1902, when the sinus was excised and cauterized. Since then, increasing pain and frequency of micturition. Catheter passed nightly, after which he got

five or six hours' sleep: at other times had to urinate every two hours. Residual urine, 8 ounces, alkaline, fetid, contained much pus. Prostate enlarged *per rectum*; rounded, tense; fairly movable. Cystoscopy on December 9, 1903, showed the prostate enlarged and rounded on the left side, irregularly jagged on the right. A mass of the muco-pus covered the trigone, and in this was embedded a phosphatic calculus, which was removed by litholapaxy. The bladder was washed out daily, with the result that the urine became acid, but there was no diminution in the pus or frequency.

On December 16, Mr. Bickersteth of Liverpool and others being present, I removed the prostate. There was considerable difficulty in opening the bladder suprapubically, owing to the scar tissues being matted together, and still greater difficulty in enucleating the prostate, owing to the inflammatory adhesions, resulting from the previous operation, between the inner margins of the prostate and the walls of the bladder, though the gland came away readily from the triangular ligament. A portion of the prostatic urethra came away adherent to the gland.

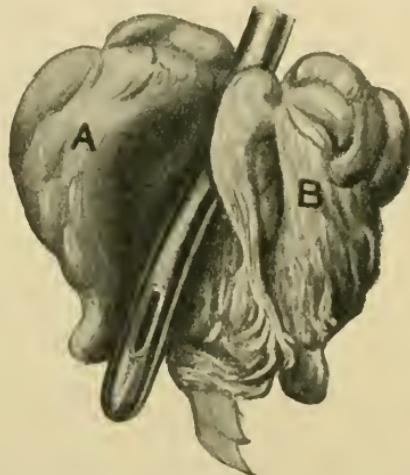


FIG. 54.—PROSTATE, WEIGHING $1\frac{1}{4}$ OUNCES, REMOVED FROM PATIENT AGED FIFTY-NINE (CASE 72).

A, Smooth nodular left lobe; B, jagged right lobe, result of portion having been previously removed by McGill's operation.

Uninterrupted recovery. The wound was closed December 29, thirteen days after the operation. The patient is now quite well, able to retain and pass his urine as well as he ever did.

The prostate (Fig. 54), which weighs $1\frac{1}{4}$ ounces, is jagged along the posterior aspect of the right lobe, where it was adherent to and matted with the bladder wall.

This is the third case in which my operation of complete enucleation of the prostate has been entirely successful after McGill's operation had failed. The previous operator in this case has persistently in his writings, and otherwise, minimized and misrepresented the nature and scope of my operation, as being identical with McGill's. It is the irony of fate that this case, in which McGill's operation performed by him had entirely failed to bring relief to the patient, should have fallen into my hands to be completely cured by total extirpation of the prostate.

CASE 125.—G. C.—, aged seventy, admitted to St. Peter's Hospital, September 18, 1904, completely dependent on the catheter from prostatic enlargement. Had been operated on in November, 1903, in another London hospital, the house-surgeon of which kindly supplied the following notes :

' November 26, 1903. Mr. —— operated by suprapubic opening : brought bladder to surface and fixed it to abdominal wall by two lateral sutures. Bladder was opened, and a small vesical tumour found blocking the internal meatus. Mucous membrane opened and a tumour the size of a walnut shelled out, adenomatous in substance. Drainage-tube inserted and catheter lodged. December 12. Abdominal wound closed. December 16. Wound broke down, urine discharging. January 1, 1904. Patient's condition not being improved, he was again taken to the theatre, wound opened, and the internal meatus found freely patent to catheter passed through it. In view of this Mr. —— determined not to do anything further. Bladder appeared to be atonic.'

Since this time patient had been obliged to use a catheter to draw off his urine, usually four times daily, though never employed before the operation. Prostate enlarged *per rectum*, bilobed, soft, and movable ; and by the cystoscope both lobes were seen somewhat prominent in the bladder, the space between them being ragged, the result of the previous operation. Pulse irregular, but no bruit detected.

On September 21, 1904, I enucleated the prostate, weighing 1½ ounces, with some difficulty, owing to the adhesions caused by the previous operation ; rather more bleeding than usual.

Uninterrupted recovery, with the exception of slight orchitis ; wound closed, and all the urine passed naturally October 6 ; discharged cured October 21. This patient presented himself at the hospital a few days ago in perfect health, able to pass and retain urine, which was normal, as well as he ever did. I introduced a catheter, but found no residual urine.

CASE 211.—On July, 28, 1905, a gentleman, aged sixty-eight, came from Paris to consult me. In November, 1904, suprapubic prostatectomy had been performed by an eminent Swiss surgeon, but a permanent fistula had remained, the whole of the urine passing by this route except

when a catheter was tied in the urethra. Urine alkaline, containing much pus and mucus, with a putrid odour. *Per rectum* I could distinctly feel that a portion of the prostate had been left behind, placed high up. As I was starting on my holiday the operation was postponed till September, when the patient returned from France. He was then in the same condition, wearing a catheter with urinary apparatus.

On September 13, 1905, I enlarged the fistula, pared its margins, and removed 3 phosphatic calculi weighing 203 grains. The orifice of the bladder was stenosed, being kept open by the catheter, and there was a beaded fringe round this consisting mainly of three nodules of prostate, each the size of a large cherry. I burst open the stenosed orifice with my finger, and enucleated the nodules of prostate. Much difficulty was experienced in separating them from the mucous membrane of the bladder owing to inflammatory adhesions; and the process was a lengthy one, the operation lasting three-quarters of an hour.

The wound was extremely slow in closing, partly owing to the debilitated and depressed state of the patient, but mainly to the fact that there was a prolapse of the posterior wall of the bladder through the fistula, the result of the previous operation. The lower wall of the fistula was $1\frac{1}{2}$ inches deep, but the upper only $\frac{1}{4}$ inch deep to its junction with the mucous membrane of the bladder, so that it would have been dangerous to pare, or extensively scrape, the sides of the fistula lest the peritoneum should be entered. By the end of December the patient left for the seaside with an extremely narrow fistulous opening, the urine being quite normal. He subsequently went to Paris, where my friend, Professor Hartman, successfully pared and stitched together the margins of the fistula, and I am pleased to learn that the patient is now passing his urine naturally.

4. Case previously subjected to Perineal Prostatectomy.

CASE 199.—Gentleman, aged sixty-three, seen in consultation with Dr. D. W. Patterson (Newcastle-on-Tyne), March 1, 1904. Prostatic symptoms for ten years. Residual urine, $4\frac{1}{2}$ ounces; prostate much enlarged *per rectum*, particularly the right lobe, soft, smooth, movable, and felt bimanually. The case was considered a most favourable one for removal of the prostate, which was advised. Other counsels, however, prevailed. Acute retention set in in July, followed by severe cystitis. Perineal prostatectomy was performed by another surgeon in September, 1904. Patient apparently did well till the perineal wound healed, when there was great difficulty in micturition from stricture, which, however, yielded to dilatation. Since that time he had not been able to empty his bladder, the residual urine varying from 4 to 14 ounces.

Bladder emptied by catheter and washed out daily for months, as the urine contained much muco-pus.

I saw the patient again with Dr. Patterson, June 26, 1905. I drew off 10 ounces residual urine, containing much pus and mucus. I could find no trace of the prostate *per rectum*, but on bimanual examination I felt a lump the size of a walnut in the median line at the neck of the bladder, which was regarded as a portion of the prostate left behind.

On June 29, Mr. C. Braine being anæsthetist, I opened the bladder suprapubically. The inner orifice of the urethra was found stenosed and surrounded by a beaded prostatic collar, from the base of which a teat-like process projected into the bladder. This collar was forcibly burst open by the finger, and the remaining prostatic substance scraped out of the sheath by the finger-nail. This was a slow procedure, as, though the collar presenting in the bladder was easily detached from the mucous membrane, the anterior portions of the prostatic tissue were stoutly adherent to the sheath from cicatricial union, the result of the perineal prostatectomy. The remaining portion of the prostate came away piecemeal, and weighed $\frac{5}{8}$ ounce. After its removal the sheath felt quite smooth, and the neck of the bladder gaped widely open. There was much more bleeding than in an ordinary case of enucleation of the prostate entire.

Recovery, though rather slow, was uninterrupted. Some urine was passed *per urethram* on July 15, and wholly in this way on July 24. On March 17, 1906, he writes: 'The operation performed by you in June last has remained a perfect success. I can retain and expel the contents of the bladder at discretion. The result is the more remarkable because before coming to you I had been the victim of a failure on the part of another surgeon, whose operation of September, 1904, had been absolutely valueless, causing me to fear that no successful result was possible.'

5. Case previously subjected to Bottini's Operation.

CASE 120. A distinguished Russian General, aged seventy-five, consulted me August 4, 1904, suffering from prostatic symptoms for six years; completely dependent on the catheter for three years; operated on about three years ago by the late Professor Bottini of Italy by the electro-cautery, but with no improvement. Since then has had cystitis continuously, for which bladder washed out twice daily. Had consulted many specialists on the Continent and in England, including Professor Guyon of Paris, with whose kind approval I was approached with a view to removal of the prostate. Great loss of flesh during past few years, with some digestive troubles; prostate enlarged *per rectum*, bilobed, very

movable, felt bimanually ; calculus detected by the sound ; sufferings so severe that the patient said he would run any risk from operation rather than continue 'catheter life.' On my advice he consulted Sir Douglas Powell, who considered that his constitution was sufficiently sound to stand operation, which had to be postponed till after my autumn holiday.

On September 15, Dr. Hewitt being the anæsthetist, I removed two phosphatic calculi suprapubically, and then enucleated the prostate. This was accomplished with difficulty, owing to the cicatricial adhesions between the prostate and bladder resulting from Bottini's operation. Scarcely any bleeding ; no shock. There was no rise of temperature, and satisfactory progress was made, with the exception of his severe digestive troubles, for which Sir William Broadbent saw him with me. On September 24 urine passed freely *per urethram*, but the suprapubic wound being slow in closing, I tied in a rubber catheter on October 21 for five days, when the suprapubic wound was firmly closed, and the urine passed naturally with perfect ease. On November 5 patient left for the Riviera in good health, able to pass and retain his urine better than he ever did before. On January 16, 1905, I heard from him that his urine was quite clear, and that his digestive troubles had practically disappeared.

LECTURE VII

RESULTS OF THE OPERATION OF TOTAL ENUCLEATION OF THE PROSTATE, WITH SOME CONCLUDING REMARKS

EXCLUDING undoubted instances of carcinoma, I have now performed my operation of total enucleation of the adenomatous prostate in 312 cases, the patients varying in age from forty-nine to eighty-seven years, the average age being sixty-eight years; and the prostates weighing from $\frac{1}{2}$ ounce to $14\frac{1}{4}$ ounces, with an average weight of $2\frac{3}{4}$ ounces.

The vast majority of the patients had been entirely dependent on the catheter for periods varying up to twenty-four years. Nearly all of them were in broken health, and many were apparently moribund when the operation was undertaken. The great majority of them were, indeed, reduced to such a wretched condition that existence was simply unendurable. Few of them were free from one or more grave complications, such as cystitis, stone in the bladder, pyelitis, kidney disease, diabetes, heart disease, thoracic aneurism, chronic bronchitis, paralysis, single, double, or even treble hernia, haemorrhoids, and in a few instances cancer of some other organ than the prostate. Such, then, were the unpromising conditions under which the operation was undertaken.

In connection with these 312 operations there were 22 deaths, the remaining 290 cases being successful. And

when I speak of success I mean complete success, the patients regaining the power of retaining and passing urine naturally without the aid of a catheter as well as they ever did. There are no half-measures about this operation. The patient can be assured beforehand that if he is prepared to accept the comparatively small risk attaching thereto, he can, with absolute certainty, look forward to a complete cure. In no instance has the patient failed to regain the power of voluntary micturition without the aid of a catheter. There has been no instance of relapse of the symptoms; on the contrary, lapse of time only seems to consolidate the cure. In no case has there been contraction at the seat of operation leading to organic stricture; nor has there been any instance of a permanent fistula remaining. In very few instances have distinct symptoms of septicæmia supervened.

Considering that in nearly the whole of the cases the urine was septic, and in many putrid, before the operation, this comparative absence of septicæmia is remarkable. To what are we to attribute this immunity? No matter how carefully the bladder is irrigated, it is quite impossible to keep the wound thoroughly aseptic. It must be remembered that a very large proportion of aged men succumb to septicæmia on entering on what is commonly termed 'catheter life.' Probably those that survive become more or less immune by gradual absorption of toxins from the septic urine that prevails sooner or later in all cases of habitual employment of the catheter.

The causes of death are as follows:

(a) Seven cases from uræmic symptoms, at intervals varying from three to thirty-nine days after operation. In all of these cases the patients were suffering from pyelo-nephritis, or other chronic disease of the kidneys, resulting from the prostatic obstruction.

(b) Three from heart failure—viz., one six hours after operation in a patient aged seventy-four, who had been entirely worn out by fifteen years of intense suffering; one twelve days after operation, the necropsy revealing aortic incompetency and interstitial nephritis; and one, aged eighty-six, on the third day, whose case was complicated by cancer of the bladder.

(c) Two from septicæmia, thirteen and thirty-five days respectively, after operation, the necropsy revealing extensive interstitial nephritis in the latter.

(d) Two from mania, after the wounds had practically healed, the mania in one instance being hereditary, and having set in before operation.

(e) Two from liver disease, believed to be malignant, fifteen and nineteen days respectively, after operation. One was complicated by a large vesical calculus, cystitis, and pyelitis. The other was deeply jaundiced at the time of operation, which was undertaken as almost a forlorn hope to relieve terrible suffering (the prostate was found to be of a dark yellow colour from the bile-pigment). Both had for two years suffered from gastro-hepatic symptoms.

(f) One from shock seven hours after operation.

(g) One from exhaustion thirty-three days after operation, the kidneys being extensively diseased.

(h) One from heat-stroke, on the tenth day, when quite convalescent from the operation.

(i) One from pneumonia seven days after operation. Two days before operation the patient had travelled a long journey in snowy weather, and it is believed that the pneumonia was the result of a chill thus contracted.

(j) One from acute bronchitis thirty hours after operation. This patient was suffering from an enormous naso-pharyngeal growth, the removal of which had been twice attempted.

The bronchitis was attributed to the anæsthetic acting on an irritable mucous membrane.

(k) One suddenly on the fifth day after pulmonary embolism. I saw the patient an hour before death, and he had had no unfavourable symptom since the operation.

Though these deaths are recorded in connection with the operation, it will be observed that in not more than one half of the number can the fatal result be attributed directly thereto, the remaining deaths being due to diseases incident to old age. This operation is comparable to none other in surgery, owing to the advanced age to which it is necessarily confined, and the broken-down constitutions of the patients from prolonged suffering; and in judging of the mortality connected therewith we must not lose sight of the fact that during the period of after-treatment and convalescence men of this age are peculiarly liable to be carried off suddenly by disease entirely unconnected with the operation, the occurrence, however, vitiating the results from a statistical point of view.

But even if we accept all the deaths in connection with the operation, this would give only a mortality of about 7 per cent., which is much less than the mortality from lithotomy in all ages combined ($12\frac{1}{2}$ per cent. according to statistics collected by Sir Henry Thompson), and about one-fifth of the mortality from lithotomy in the corresponding ages ($33\frac{1}{2}$ per cent. according to Sir Henry Thompson). If the operation were undertaken in selected cases only—cases in which the general health was unimpaired—the mortality might be still further much reduced; but any such restriction is in my opinion unjustifiable, as it would have the effect of excluding five-sixths of the patients who at present seek relief from this operation. As the operation becomes more widely known and more popular patients will no doubt seek relief therefrom at an earlier period of the disease, whilst

their constitutions are sound, and, above all, the kidneys unimpaired, with a much greater prospect of success. It will be observed that in a large proportion of the fatal cases death was due to chronic forms of kidney disease incident to so-called 'catheter life.' It therefore behoves the patient to seek, and it is incumbent on his medical adviser to urge, operation whilst the kidneys are still sound, before the complications arising from 'catheter life' set in, resulting in destruction of the kidneys, or impairment of their functions. Increased experience and dexterity in operating, improvement in the details of the after-treatment, and a greater perfection in the nursing are all factors that will undoubtedly tend to reduce still further the death-rate. I have recently had a consecutive series of thirty-seven operations without a death.

I submit that the results of this operation—so subversive of all preconceived ideas regarding the enlarged prostate, so revolutionary in its effects, so complete and permanent in its cure—are truly remarkable. They are far beyond anything I could have hoped for at its inception. I believe that I shall not be accused of exaggeration when I state that all previous so-called methods of radical cure of enlarged prostate were utterly unsatisfactory, and that catheterism, though hitherto the least objectionable mode of treatment in the majority of cases, is certain sooner or later to terminate in cystitis and other dangerous complications. The successful results obtained in this large series of cases of total enucleation of the enlarged prostate encourage us in the hope that we have at last arrived at a rational and practical method of dealing with one of the most painful, pathetic, and fatal diseases.

There is, perhaps, no expression which one hears and sees more constantly made use of in connection with prostatic cases than 'atony of the bladder.' The history of these cases goes far to prove, I submit, that no such condition

exists, even in the most advanced instances of the disease ; and that even when complete catheterism has prevailed for many years the bladder walls retain their expulsive power. Indeed, they are constantly making involuntary efforts to get rid of the urine, which is merely kept back by the mechanical blockage of the passage by the enlarged prostate. And though in the early stages of the disease a so-called 'middle lobe' may impede the flow, I am convinced that in the later stages the lateral pressure exerted on the canal is the main cause of the obstruction.

One of the most remarkable features of this operation is the complete restoration of the power of voluntary micturition after habitual catheterism had been employed for lengthened periods. It may be of interest to quote the opinions of two eminent surgeons, one in this country and one on the Continent, as to the possibility of this occurring. The late Sir H. Thompson, in the last edition of his 'Diseases of the Urinary Organs,' writes :

'When it has been necessary to practise habitual catheterism for retention from enlarged prostate during a period of one or two years, the coats of the bladder lose their power and are incapable, I believe, of regaining it in almost any case after that lapse of time, and would fail to expel their contents even supposing the obstruction to be entirely removed. There is good ground for believing that no operation would restore a *status quo*, on account of our inability to restore the expelling function to a bladder which has long ceased to exercise it.'

And M. Guyon in his 'Leçons Cliniques' (1888) writes :

'Voyez, en avant, ces lourdes masses qui représentent les lobes latéraux, fortement appliqués l'un contre l'autre et qui opposent un obstacle certainement plus considérable que le lobe moyen à l'écoulement de l'urine. *Croyez-vous qu'il soit jamais possible d'en pratiquer aussi l'ablation ?* Et quand un

tel prodige opératoire deviendrait réalisable, *croyez-vous que la vessie, après avoir été plus ou moins longtemps soumise à la distension, pourrait recouvrer son intégrité anatomique et fonctionnelle?* Croyez-vous que les lésions histologiques dont sa couche musculaire et sa muqueuse sont atteintes, et celles qui portent sur la substance rénale, seraient aussi susceptibles de rétrograder? Il est évident que toutes ces lésions, et vous savez qu'elles sont à peu près constantes, même dès le début de la maladie, ne peuvent relever d'aucune intervention opératoire, et *je puis ainsi conclure que le traitement radical de l'hypertrophie de la prostate n'existe pas et ne saurait exister.*

The italics are mine. The very decided opinions expressed by these two distinguished surgeons—opinions based on purely theoretical grounds—have, happily, been entirely falsified by the results of these cases; for not only has the enlarged prostate been ablated in each instance, but the expulsive power of the bladder has been completely restored after that power had been lost for periods varying from a few months to twenty-four years. It was, therefore, a source of much pleasure and satisfaction to me to receive from Sir Henry Thompson a letter intimating his conversion to my views in the following words:

‘I am much obliged to you for sending me your lecture, and cannot resist the evidence you have produced that the operation of total extirpation of the prostate is possible, and has led to excellent results.

‘I am surprised by the results which you have found in your cases, of power to empty the bladder by the natural powers, which were not believed on *a priori* grounds by my old friend Guyon and myself to exist.’

Sir Henry, who was intensely interested in this operation, was good enough to pay me several visits for the purpose of examining the prostates removed, and I was fortunate in

having the aid of this veteran surgeon in the interpretation of certain features connected therewith.

The essential portion of the operation—that during which profound anaesthesia is necessary—is covered by the time that elapses between commencing the suprapubic cystotomy and the delivery of the prostate from the bladder. It will have been observed that with increased experience has come increased rapidity of execution. In the early days of the operation it was not unusual for this period to extend to twenty minutes or half an hour, or even more, whilst latterly in ordinary cases this period is covered by from two to five minutes, and in difficult cases by from eight to twelve minutes. There can be no doubt that rapidity in operating is of vital importance in an operation of this kind, confined as it is to persons of advanced age, thus shortening the period during which full anaesthesia is necessary, minimizing the loss of blood, and obviating shock.

In the correspondence that ensued on the publication of my first lecture on the subject of total enucleation of the prostate in the *British Medical Journal* of July 21, 1901, the question was discussed as to whether, as held by me, my operation was a complete prostatectomy, or, as suggested by some, one in which a thin layer of the outer rim of the prostate was left behind. The question was, of course, one of purely academic interest, and could not in any way detract from the practical merits of the operation, for no one could deny that the results were eminently satisfactory to the patient.

The evidence on which I based my conclusion that my operation was a complete prostatectomy may be summarized thus: (1) The general conformation of the specimens removed by me indicated that they were entire prostates. (2) The absence of any palpable prostatic substance in the cavity that remained at the time of operation, as felt between

a finger in this cavity and a finger in the rectum—a very thin membrane, consisting merely of the bowel and the sheath of recto-vesical fascia, lying between the points of the fingers. (3) The absence of any mass resembling prostatic tissue in the cases operated on, at any period after the operation, on examination by the finger in the rectum. (4) When the enlarged prostate projects prominently in the bladder the true capsule is at once reached on scraping through the mucous membrane covering it by the fingernail. Following the outer aspect of this capsule by pushing the finger through the lumen, outside the bladder, in the plane between it and the sheath, the organ is enucleated in its capsule. Now, if a layer of prostate were left behind extravesically, this layer must necessarily extend intravesically; but in practice no such layer is found in the bladder, but merely mucous membrane. (5) The absolute and complete relief of the symptoms after operation, no matter how many years the patient had been dependent on the catheter. (6) But Mr. Thomson Walker has adduced the most cogent evidence of all (*vide* Medico-Chirurgical Transactions, 1904, pp. 404-445), by demonstrating that no prostatic tissue is found in specimens removed from the bodies of persons on whom the operation had been performed during life. The fact that occasionally a minute nodule or tuft of prostatic tissue is accidentally left behind, owing probably to inflammatory adhesions between the capsule and sheath, is no proof that the prostate is not enucleable as a whole. As well might it be argued that the edible portion of an orange is not enucleable entire from the rind, because occasionally, through under- or over-ripeness, a small mass of the pulp and capsule is left adherent to the rind.

In the April number of the *Annals of Surgery* for 1905, Dr. Eugene Fuller, of New York, lays claim to having been the originator of the operation which I have described as

my own. A similar claim was advanced by him during the controversy that ensued on the publication of my first lecture on the subject in the *British Medical Journal* of July 20, 1901, and its absurdity demonstrated in the issue of that journal of August 17, 1901. I should not, therefore, consider it necessary to refer to the subject again, only that Dr. Fuller now publishes in support of his contention a somewhat belated letter, dated February 5, 1905, written him by Dr. Ramon Guiteras, of New York, in which this latter gentleman alleges that when passing through London in 1900 he explained to me Fuller's method of operating, and his own modification thereof. And then I am accused of having published their combined method as my own, without any reference to either of them!

It is true that I did not allude to the work of either of these gentlemen, for the simple fact that, as I shall presently show, there is no similarity between my operation and that described by Dr. Fuller, and that the 'instruction' alleged to have been given me by Dr. Guiteras exists only in the imagination of that gentleman.

Dr. Fuller bases his claim to having originated the operation which I regard as my own on an article published in the *Journal of Cutaneous and Genito-urinary Diseases* of June, 1895, entitled 'Six Successful and Successive Cases of Prostatectomy.'

Turning to this article, we find that not alone was the technique employed by Dr. Fuller radically different from mine, but that his operation was purely a partial prostatectomy of the McGill type, bearing no resemblance to mine.

In the operation described by Dr. Fuller—(1) a perineal section is made in addition to the suprapubic cystotomy; (2) the suprapubic wound is closed by deep and superficial sutures; (3) an attempt is made to render the prostate prominent in the bladder by pressure of the fist on the

perineum; and (4) cutting and crushing instruments are employed to attack the prostate, prominent amongst which are (to use Dr. Fuller's own words) 'rough, serrated-edged scissors with a long handle,' which are used 'to cut through the bladder wall' in the region of the urethral opening—'the cut extending from the lower margin of the internal vesical opening of the urethra backward for $1\frac{1}{2}$ inches'—all of which proceedings and accessories are, it will have been observed, foreign to my operation.

Let us now examine Dr. Fuller's six cases in detail, to ascertain the extent and nature of the prostatic substance removed in each instance, and see if this bears any resemblance to that removed by me, as already described and figured. The description of what was removed will be given in Dr. Fuller's own words:

CASE A.—'I removed a large right lateral hypertrophy and the median hypertrophy, which last was moderate. Owing to the bad condition of the patient, I did not wait to remove a small left lateral hypertrophy.'

CASE B.—'I enucleated in the way described a large collar-like hypertrophy of the prostate.'

CASE C.—'I found two large lateral hypertrophies. The median hypertrophy was not marked. These hypertrophies were all thoroughly enucleated without difficulty.'

CASE D.—'Owing to the age (forty-eight years) of the patient and the small size of the prostate as felt *per rectum*, it was not thought necessary to make a suprapubic incision, the perineal route being employed. As the result of the operation a very hard fibrous mass, similar in shape but smaller than a hen's egg, was found lying transversely across the floor of the bladder just at the vesical neck. This was cut through by the knife in making the perineal incision. It was, however, so fibrous and so firmly attached to the capsule of the prostate that it was found impossible to enucleate it, and it consequently had to be cut away by the use of both the serrated scissors and of prostatectomy cutting-forceps.'

CASE E.—'I enucleated two large lateral hypertrophies, together with a small median one, the whole mass coming away in one piece.'

CASE F.—'I enucleated two large lateral hypertrophies, together with a collar-like median hypertrophy, partially surrounding the urethra.'

It is simply ludicrous to claim that these were total

prostatectomies resembling that described and practised by me. One (Case D) is a perineal operation pure and simple. In one (Case A) Dr. Fuller 'did not wait to remove a small left lateral hypertrophy'! They were one and all obviously partial prostatectomies, in which nodular lumps of enlarged prostate ('hypertrophies,' Dr. Fuller calls them) were removed from within the capsule, as in McGill's operation, whereas the essential feature of my operation is that the prostate is enucleated entire in and with its capsule out of the enveloping sheath of recto-vesical fascia. It was the discovery that this could be accomplished—contrary to the then accepted teachings of the anatomists—that constituted the essential novel feature in my operation. We can, in consequence, approach our task—that of removing the prostate entire, and the prostate only—by a simple and scientific plan of campaign, instead of the crude and unscientific methods previously practised by McGill and his imitators, in which scissors, cutting-forceps, and scoops of various kinds were employed to cut and tear away portions of prostate, leaving others behind, and frequently removing portions of the bladder and other tissues beyond the limits of the prostate, with such fatal results that for some years before 1901, when my operation was placed before the profession, these operations had been practically abandoned.

The objects figured as removed in Cases E and F in Dr. Fuller's series are obviously mangled masses of prostate, and bear no resemblance to the cleanly enucleated entire prostates figured by me, which, to the number of over 300, have been preserved in my private collection or presented to public museums, and which have been seen and examined by scores of Dr. Fuller's countrymen. I challenge again, as I have repeatedly challenged, the production of a single authentic specimen of entire prostate from any museum in the world, placed there before the publication of my first

series of cases in July, 1901, with any published illustration thereof, or description of its having been removed entire in its capsule. There was no such specimen in the great Hunterian Museum of the London College of Surgeons till, at the request of the Curator, I presented a dozen specimens thereto.

Dr. Fuller's idea of what constitutes a total prostatectomy is not less quaint than his conception of what constitutes a successful operation. Describing the condition of Case E, he writes: 'Four weeks after the operation the patient sat up, and now, six weeks after, he walks about the ward with the aid of an attendant. The urine, now clear, still comes through the granulating suprapubic wound, which the slough made quite extensive. There is good expansive force in the bladder, and with the suprapubic wound closed I feel that urination will be accomplished without difficulty. The uræmic symptoms have not all disappeared, and at times he is drowsy or excitable. It is probable that in time he will succumb to his nephritis, and such is to be expected, especially since, owing to his poverty, comparatively little can be done for him.'

Let the reader imagine himself in the position of the patient, and say if, under the circumstances, he would regard this operation as successful! But what matters it what the reader thinks, since Dr. Fuller adduces the irreproachable testimony of Mr. Mayo Robson to the effect that it was entirely successful. In his article in the *Annals* Dr. Fuller writes: 'Mr. Robson concludes his reference to me with the remark: "Moreover, Dr. Fuller's cases referred to above were completely cured." I scarcely think that even the testimony of Mr. Robson will convince the reader that this case was either 'successful' or 'completely cured.' Mr. Robson is evidently willing to extend to Dr. Fuller that elasticity as to the meaning of the word 'success' which he

employs in his own statistics (*vide British Medical Journal* of September 7, 1901, p. 627). I have referred to this matter merely to show that Dr. Fuller's statements and statistics have to be taken with a certain amount of reserve.

Dr. Fuller quotes freely from the letters of my opponents in the controversy that ensued in the *British Medical Journal* on the publication of my first four cases of my operation, and adds: 'Anyone interested can read them.' Yes indeed, and interesting literature they will prove in the light of subsequent events. But considering the triumphant success of my operation and vindication of the views I then enunciated, I would venture to suggest that, for the credit of the profession, a veil might be drawn over the misrepresentations, misstatements, sophistry, and venom with which I was then assailed when I stood practically alone—a fate which I have enjoyed in common with every pioneer of any great advance in surgery or medicine.

With reference to the statement contained in Dr. Guiteras's letter of February 5, 1905, published by Dr. Fuller in the *Annals*, to the effect that when in London in 1900, on his way to Paris, where he read a paper before the International Medical Congress on 'The Present Status of the Treatment of Prostatic Hypertrophy,' he met me, and explained Dr. Fuller's method of operating and his own modification thereof, I was not previously aware that I had had the honour of this gentleman's acquaintance. He does not state in his letter where the interview took place, but Dr. Fuller supplies the omission by locating it at St. Peter's Hospital—a fact that would indicate that this letter was not the only communication that passed between these gentlemen on the subject! I presume that, like scores of his countrymen—who are always welcome—he honoured me with his presence in the operating theatre; but I have no recollection of having ever conversed with him on pros-

tatectomy or any other subject, and certainly, if any such conversation did take place, it left no impression on my mind.

It is fortunate, under the circumstances, that the paper read by Dr. Guiteras in Paris is published *in extenso*, in the *New York Medical Journal* of December 8, 1900, so that we are in possession of his views as to the nature and scope of Dr. Fuller's operation. After describing this operation he writes: 'In this way the bulk of the prostate can often be shelled out in three large pieces, while at other times it must be removed piecemeal. Enucleation cannot always be performed by this means, and frequently the operator has to be content with the removal of a piece forming the principal part of the barrier.' This, then, would have been the gist of the imaginary 'instruction' conveyed to me! I need scarcely say that the operation described, whether in its technique or in its scope, bears no resemblance whatever to that which bears my name.

Dr. Fuller published the description of his operation with six cases in June, 1895, but his teachings seem to have fallen on deaf ears. No one even seems to have thought it worth while to point out the resemblance it bore to McGill's operation, which had then fallen into disfavour. So far as I am aware, his name was never referred to on this side of the Atlantic for more than six years after, till it was unearthed from the dusty archives of the Medico-Chirurgical Society by Mr. Mayo Robson during the controversy that ensued on the publication of my first lecture on my operation in July, 1901, and then only after the attempt by Mr. Robson to father my operation on himself had been exposed and refuted. I am not aware that in his own country it fared much better. Contrast with this the profound interest elicited by the publication of my first four cases of my operation; the extraordinary rapidity with which it has

been adopted by surgeons all the world over ; the irresistible conviction carried to the profession and public by the details of the several series, gradually increasing in number, since published. Dr. Fuller's own method of operating having fallen flat, he now attempts to appropriate to himself whatever merit attaches to my discovery.

THE END

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